High
Efficiency
Solutions.

CAREL

boss

The new mobile-ready local supervisor

The new CAREL local supervisor for medium and large systems

with built-in Wi-Fi, accessible from all mobile devices

boss

- Completely browsable from mobile devices, from commissioning to daily access for system maintenance;
- Built-in Wi-Fi to create a network and allow the supervisor to be accessed from the user's devices without requiring other network infrastructure.

Energy saving & system optimisation

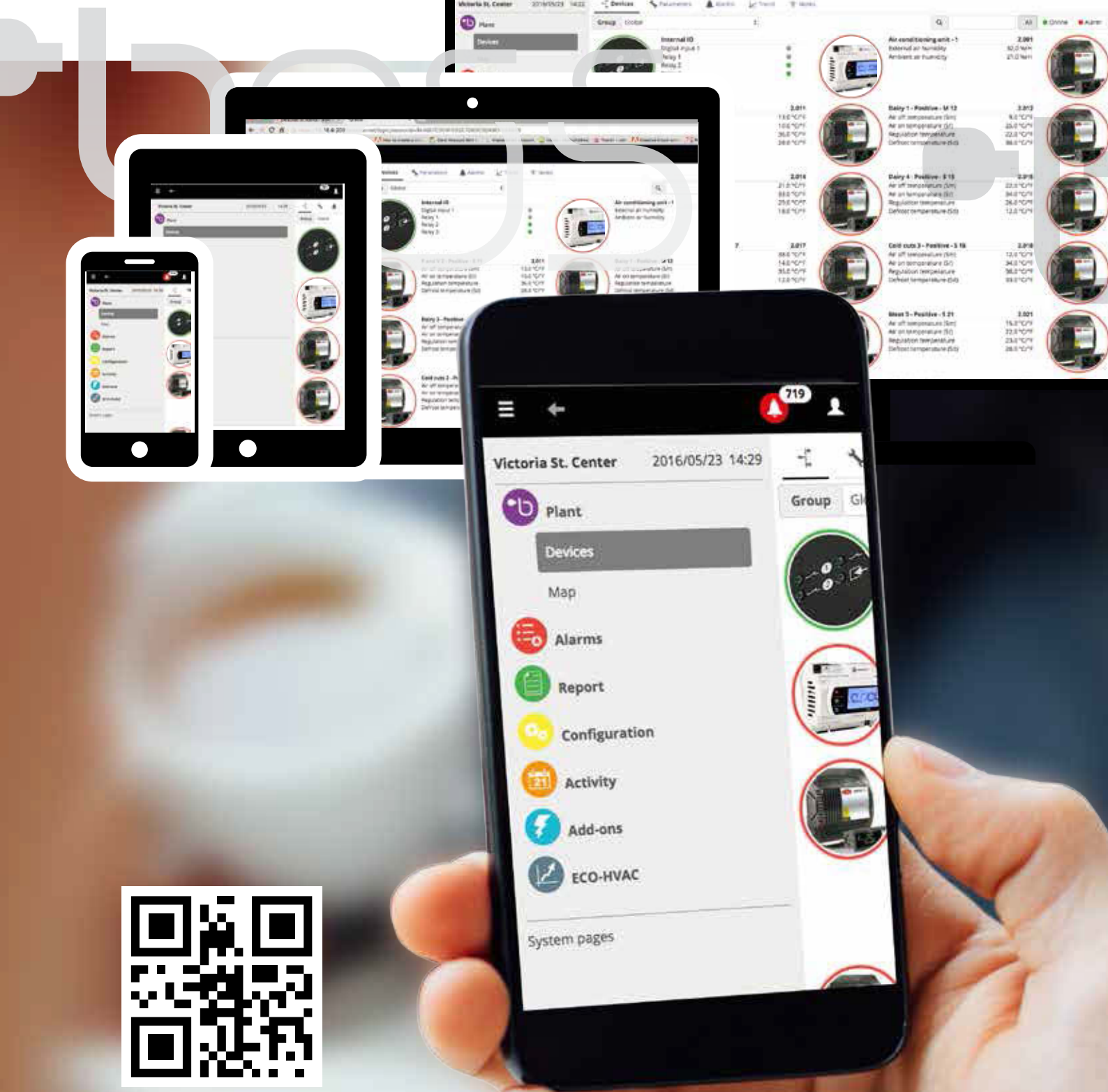
Algorithms for analysis and comparison, developed exploiting CAREL's experience, to facilitate and guide users in optimising energy consumption.

Secure data & browsing

HTTPS protocol for secure data transfer over the web from boss to an external device.
Customised operating system to guarantee system reliability.

Intuitive & customisable interface

All the information is available to the user in just a few simple clicks, including system configuration and device management.



boss always in your pocket

Responsive web pages offer the possibility to access all boss pages for both programming and everyday operations using mobile devices. The graphics automatically to the device they are displayed on (computers with different screen resolutions, tablets, smartphones), minimising the need for the user to resize the pages and scroll the contents.

centralised management

boss permits automatic data and alarm synchronisation with RemotePRO, so as to keep the situation on all connected systems under control from just one interface. Centralised system management also increases reliability, through alarm analysis and scheduling of service. It also allows increased energy efficiency by comparing energy consumption and performance between the different sites and identifying possible cost reduction actions.

remote service

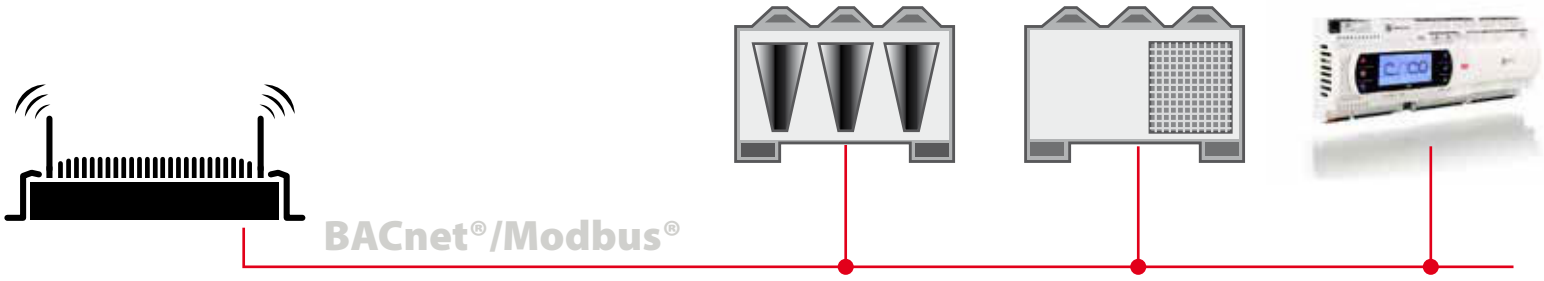
Access to typical operating system functions, such as printer driver installation, copying files, etc. is also available via a web interface, another first for a supervisory system. This means that remote service operations can be performed by authorised personnel without needing to travel on site, as is required with other supervisory systems.

Protocols and connectivity

For the first time ever on a CAREL supervisor, boss introduces the BACnet protocol, the leading protocol in HVAC supervision applications.

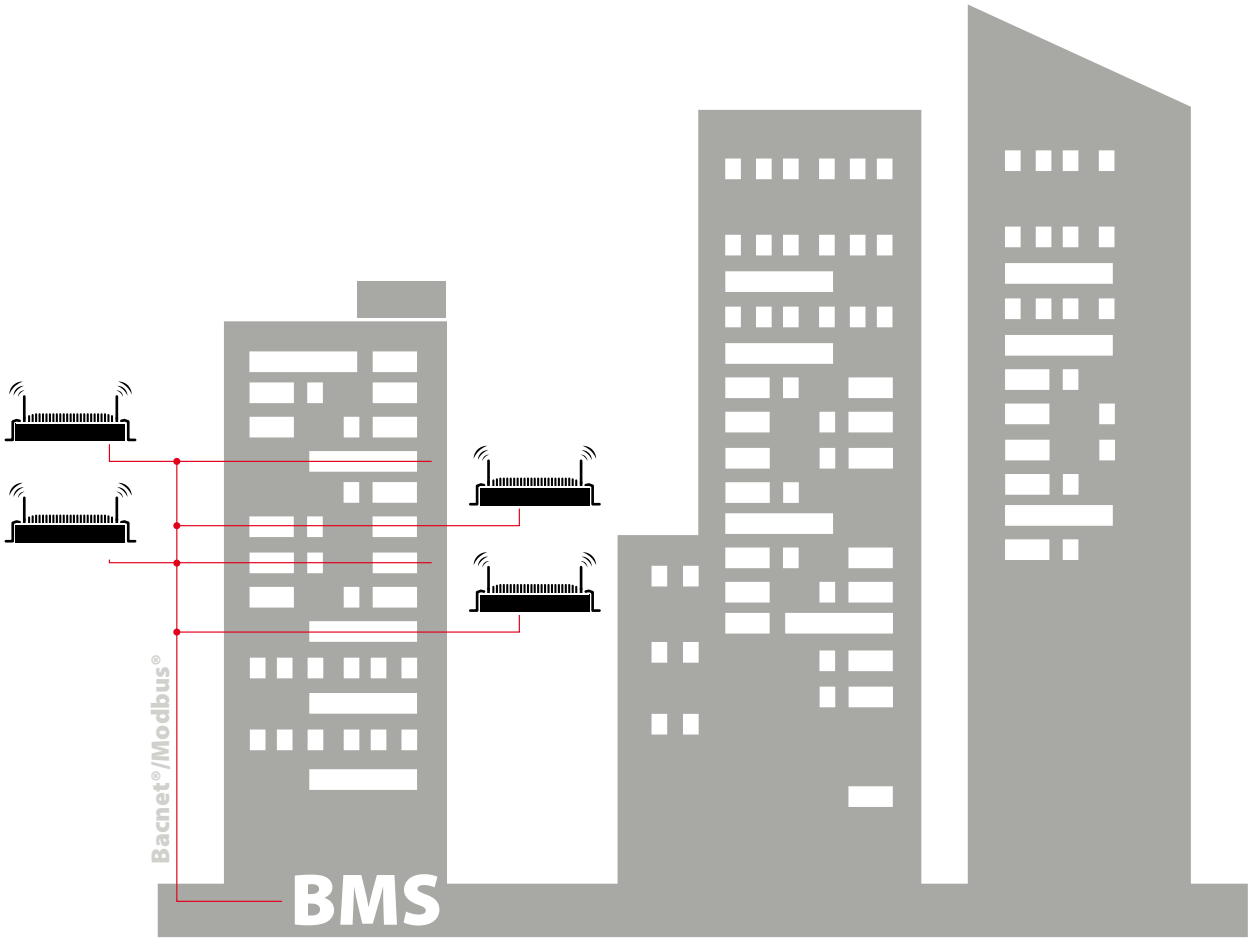
Integration of third party devices

This new feature significantly increases the possibility to integrate third party devices. The BACnet Master protocol is available in both MS/TP (RS485) and TCP/IP modes, and together with the Modbus RS485 and Modbus TCP/IP protocols, these too available on boss, offers the possibility to interact with the widest range of devices in the HVAC/R sector.



BMS integration

In addition to Master mode, the BACnet protocol is also available on boss in TCP/IP Slave mode, allowing boss to be integrated into a higher-level BMS, sharing the values of interest for overall building management (e.g. unit status, alarm status, ON/OFF controls,...)



System optimisation functions

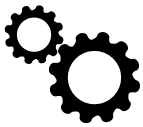
KPI
Performance index

Allows users to analyse the thermodynamic behaviour of the individual units connected to boss, defining for each, or for groups of units, the minimum and maximum operating thresholds for different variables, creating dashboards to identify which units are operating outside of the optimum conditions.

ENERGY
Consumption control and management

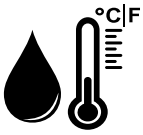
Allows users to monitor system energy consumption using graphs and reports, and then implement actions aimed at reducing waste or fixing any faults highlighted.

FLOATING SUCTION
Optimised suction pressure



This is used to optimise - in real time - the compressor rack working set point, thus reducing power consumption, by analysing the duty cycle of the connected cabinets. Based on cabinet cooling demand, the plug-in increases or decreases the compressor rack set point.

DEW POINT BROADCAST
Share the dew point



This is used to optimise activation of the anti-sweat heaters on the refrigeration units connected to boss, and consequently reduce power consumption. Connected to a room temperature and humidity probe, boss calculates the dew point in the area and sends the value to the entire network of connected units.

SAFE RESTORE
Safe compressor rack restart

This is used to manage safe and optimum compressor rack restart following a fault, in the event of specific compressor rack conditions putting all the connected refrigeration units in safety mode.

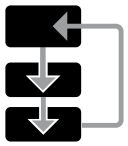
PARAMETER CONTROL
Parameter control

This is used to monitor all fundamental parameter setting actions on the units connected to the supervisor, for example the set point, performed either using boss or directly on the unit, and then activate restore logic, sending alerts when such occur.

LOGICAL DEVICE/GROUND
Logical devices & logical variables

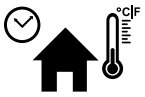
This is used to create new "virtual" variables and devices on boss, and then manage these as if they were real variables or devices, created based on physical variables on the existing network devices.

ALGORITHM PRO
Customised logic



This is used to create additional customised logic using the Java programming language, so as to increase interaction between boss and the connected devices.

HVAC SMART START
Optimised air-conditioning ON/OFF



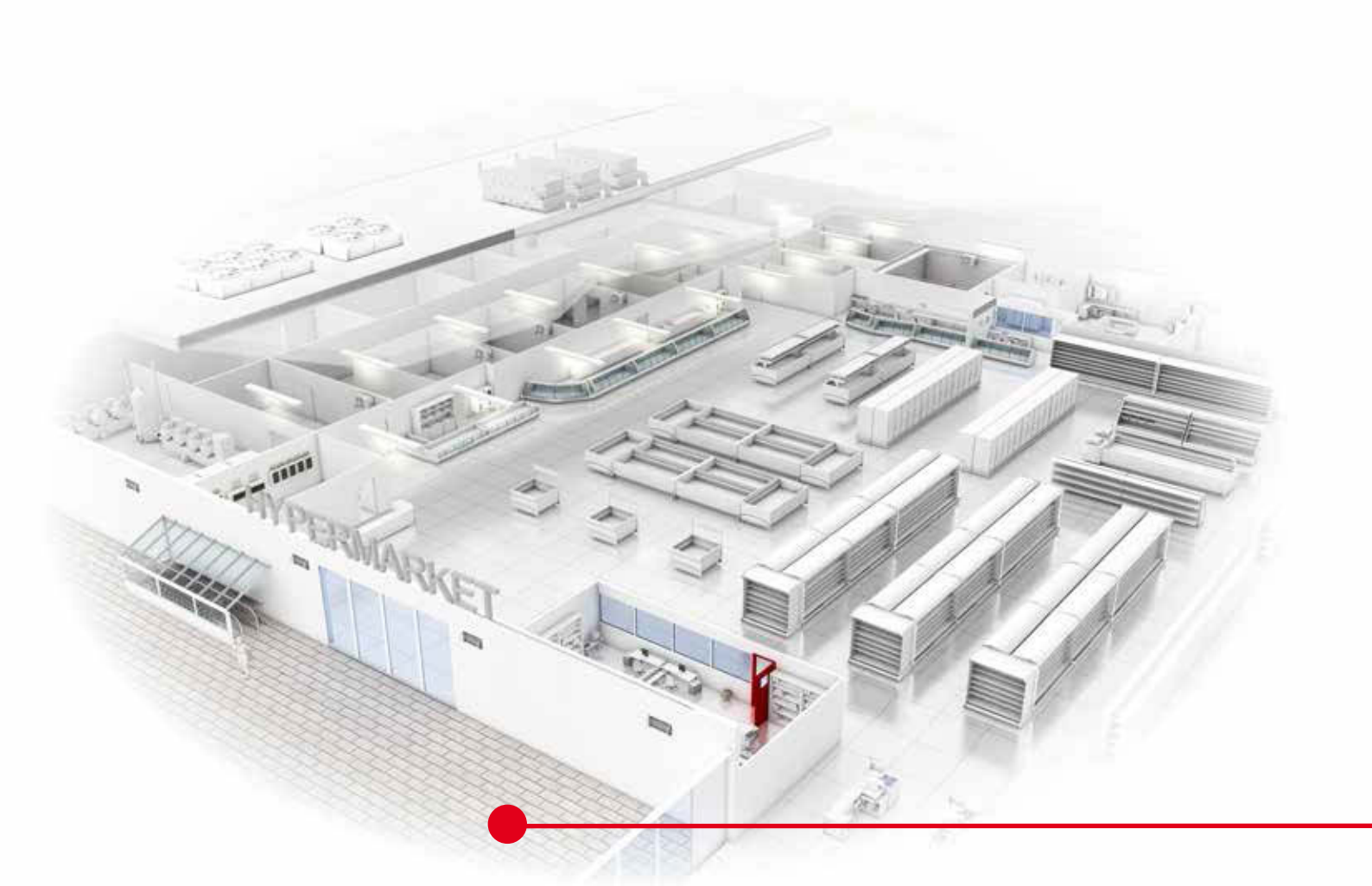
This is used to optimise activation, shutdown and set point change on HVAC units based on the ambient information acquired by boss, such as inside and outside temperature, system inertia, occupancy and air quality.

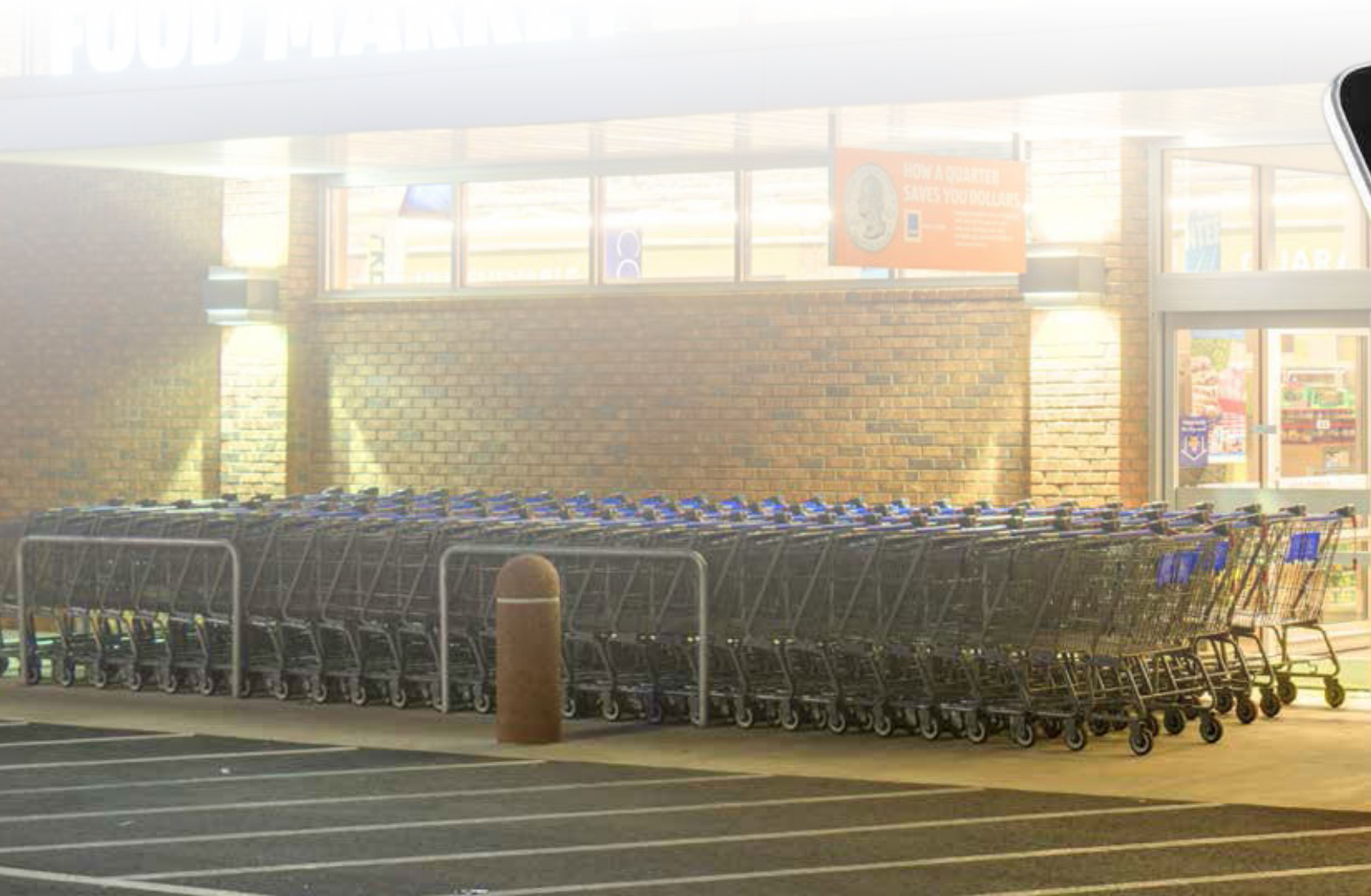
GEO - LIGHTING
Optimised management of lights based on outside light

This is used to optimise switch-on and switch-off of outdoor lights based on site latitude and longitude, thus knowing the time when the sun rises and sets.

SMART HIGH PURGE
Optimised free cooling on HVAC units

The air-conditioning system can be started before sunrise using calculations based on system enthalpy (inside and outside), so as to fully exploit free cooling.

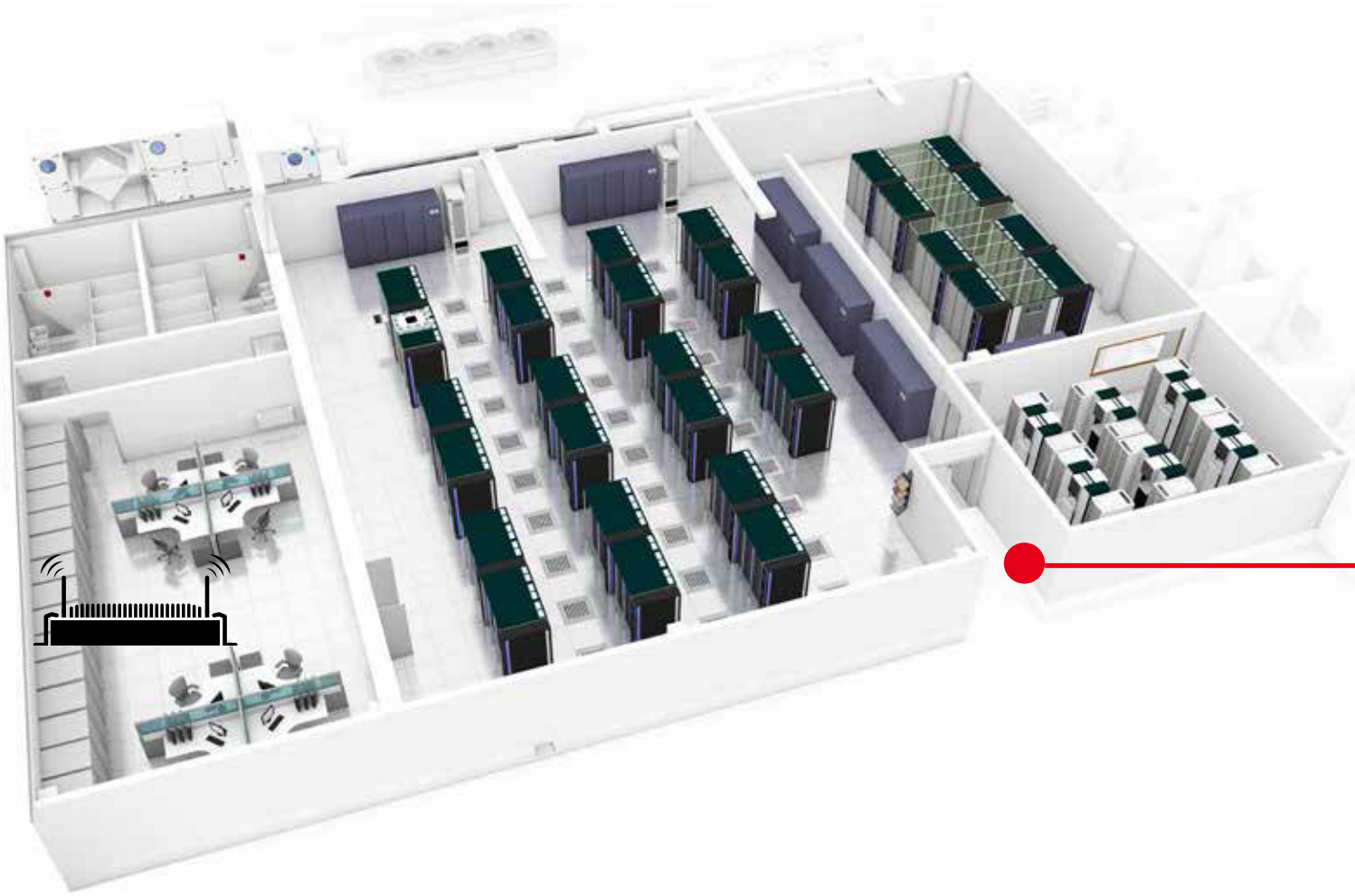

HYPERMARKET


HOW A QUARTER
SAVES YOU DOLLARS

Refrigeration applications

Optimisation of retail systems

In addition to all the functions of a standard supervisor, boss all includes functions for managing refrigeration units and interaction between units, meaning not only is the system controlled, but also optimised in terms of thermodynamic performance and energy consumption.
CAREL's extensive and in-depth knowledge of these applications has also led to the development of user interfaces that are configured based on the type of user (i.e. installer, maintenance personnel, system manager) and the type of use, so as ensure simpler and faster commissioning.



Air-conditioning applications

Optimisation of HVAC systems

Extensive configurability, customisation of maps and the introduction of new protocols, above all BACnet, as well as the possibility to communicate with other devices via Ethernet, make boss ideal for HVAC applications.
The supervisor can also interface with other BMS systems, for example in large buildings where the main BMS manages those systems that are not included among the functions handled by boss (security, fire safety,…).
In this case, boss manages the HVAC systems, providing specific data that create added value for the end customer, and then sharing with the main BMS only the information needed to understand system status.

Customised graphics

User interfaces that can be customised according to the way in which information is managed by different users

With the c.web tool, system status and the main variables relating to each controller can be represented using customised graphics. Indeed c.web offers several powerful features, such as the creation of vectorial images that can adapt to all screen sizes on both desktop and mobile devices without losing resolution, the possibility to develop customised animated widgets in just a few clicks, and the reusability of graphic libraries developed for one project inside another.

The same hardware is suitable for all applications

The absence of an internal fan and heat dissipation ensured by a robust aluminium casing mean boss can be installed in many different environments, even industrial environments in which conditions are unfavourable.

Desktop

Wall-mounted

DIN rail

Product part numbers

P/N	Description	Max. number of devices managed/variables logged
BMHST00XS0	boss Monitoring System Standard Capacity	100/1500
BMHST00XE0	boss Monitoring System Extended Capacity	300/3500

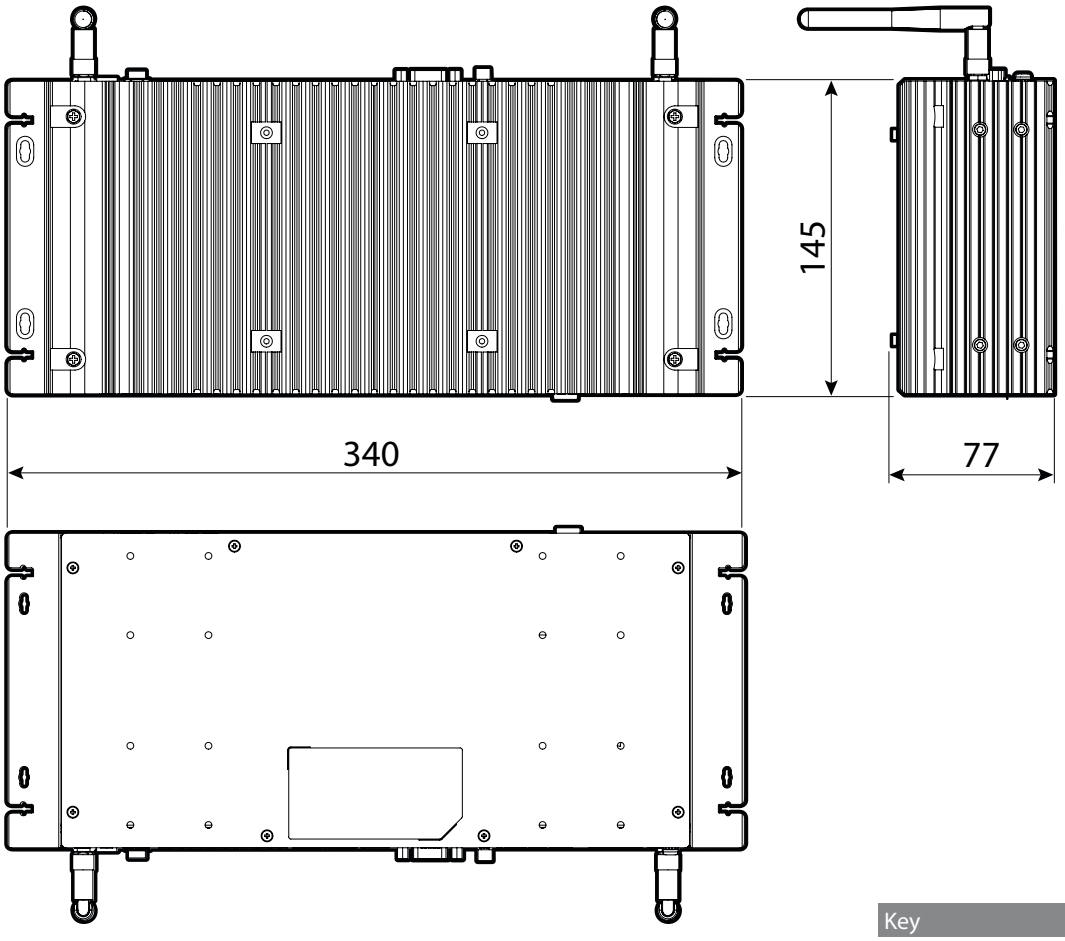
Accessory part numbers

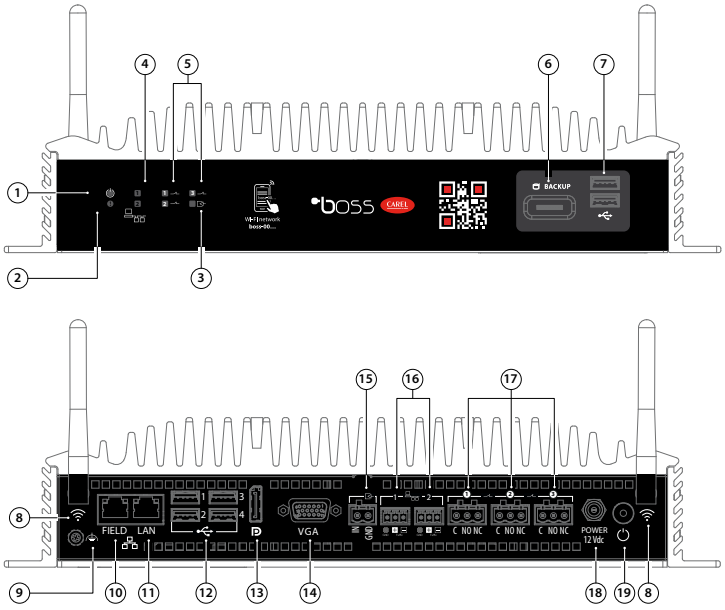
P/N	PCOX*A
BMHST01P00	Credit for 1 boss plug-in
BMHST03P00	Credit for 3 boss plug-ins
BMHST05P00	Credit for 5 boss plug-ins
BMHSTDNA00	DIN rail mounting bracket
XXXXXXXXXXX	GSM/3G modem kit for sending SMS messages

Functions

	Function	BMHST00XS0 (Standard Capacity)	BMHST00XE0 (Extended Capacity)
HARDWARE	Built-in Wi-Fi connectivity to mobile devices	Yes	
	Double Ethernet port (separate LAN / Internet connections)	Yes	
	Built-in backup memory expansion (uSD)	Yes	
	Built-in optically-isolated RS485 ports	2	
	Built-in digital inputs	1	
	Built-in relay outputs	3	
	USB host ports	6 (2 front and 4 rear)	
	Status LED	8 front (on/off, alarm, RS485 ports, relay, digital input)	
	Possibility to connect external GSM modem to send SMS	Yes	
	Minimum variable sampling time	5 sec	
	Power supply	100-240 V~ 50-60 Hz power supply module input / 12VDC power supply module output	
	Operating / storage temperature	from 5 to 45 °C / from -20 to 65 °C	
	Maximum number of devices	100	300
	Maximum number of logged variables	1500	3500
SOFTWARE	Responsiveness of all pages	Yes	
	Graphic customisation with HTML5 / SVG technology	Yes (using ***c.web*** tool)	
	Web connection with encrypted protocol (HTTPS)	Yes	
	Integration of third party devices	Yes (using ***device creator*** tool)	
	Modbus RTU master protocol	Yes	
	Modbus TCP/IP master protocol	Yes	
	Data synchronisation with RemotePRO	Yes (cost of 1 plug-in credit)	
	BACnet Master protocol (MSTP and TCP/IP)	Yes (cost of 1 plug-in credit)	
	BACnet protocol Slave (TCP/IP)	Yes (cost of 1 plug-in credit)	
	Modbus RTU or TCP/IP Slave protocol	Yes (cost of 1 plug-in credit)	
	Development of custom logic by user	Yes (cost of 1 plug-in credit)	
	Logical devices / logical variables	Yes (cost of 1 plug-in credit)	
	Performance index	Yes (cost of 1 plug-in credit)	
	Consumption control and management	Yes (cost of 1 plug-in credit)	
	Suction pressure optimisation	Yes (cost of 1 plug-in credit)	
	Parameter control	Yes (cost of 1 plug-in credit)	
	Safe compressor rack restart	Yes (cost of 1 plug-in credit)	
	Dew point broadcast	Yes (cost of 1 plug-in credit)	
	Optimised free cooling on HVAC units	Yes (cost of 1 plug-in credit)	
	Optimised air-conditioning on/off	Yes (cost of 1 plug-in credit)	
	Optimised outside lighting management based on outdoor light	Yes (cost of 1 plug-in credit)	
	Send emails	Yes	
	Send SMS	Yes	
	Manual and/or automatic reports in CSV and PDF format	Yes	
	Scheduled activity management	Yes	

Dimensions and key





Key
1. ON/OFF status LED
2. Alarm status LED
3. Digital input status LED
4. RS485 status LED (1, 2)
5. relay status LED (1, 2, 3)
6. µSD port
7. USB ports (1, 2)
8. Two antennas
9. Earth
10. FIELD Ethernet
11. LAN Ethernet
12. USB ports (1, 2, 3, 4)
13. Display port
14. VGA port
15. Digital inputs
16. RS485 line (1, 2)
17. Relay outputs (1, 2, 3)
18. Power supply
19. ON/OFF button

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