

Carpark 3 - Parking guidance system

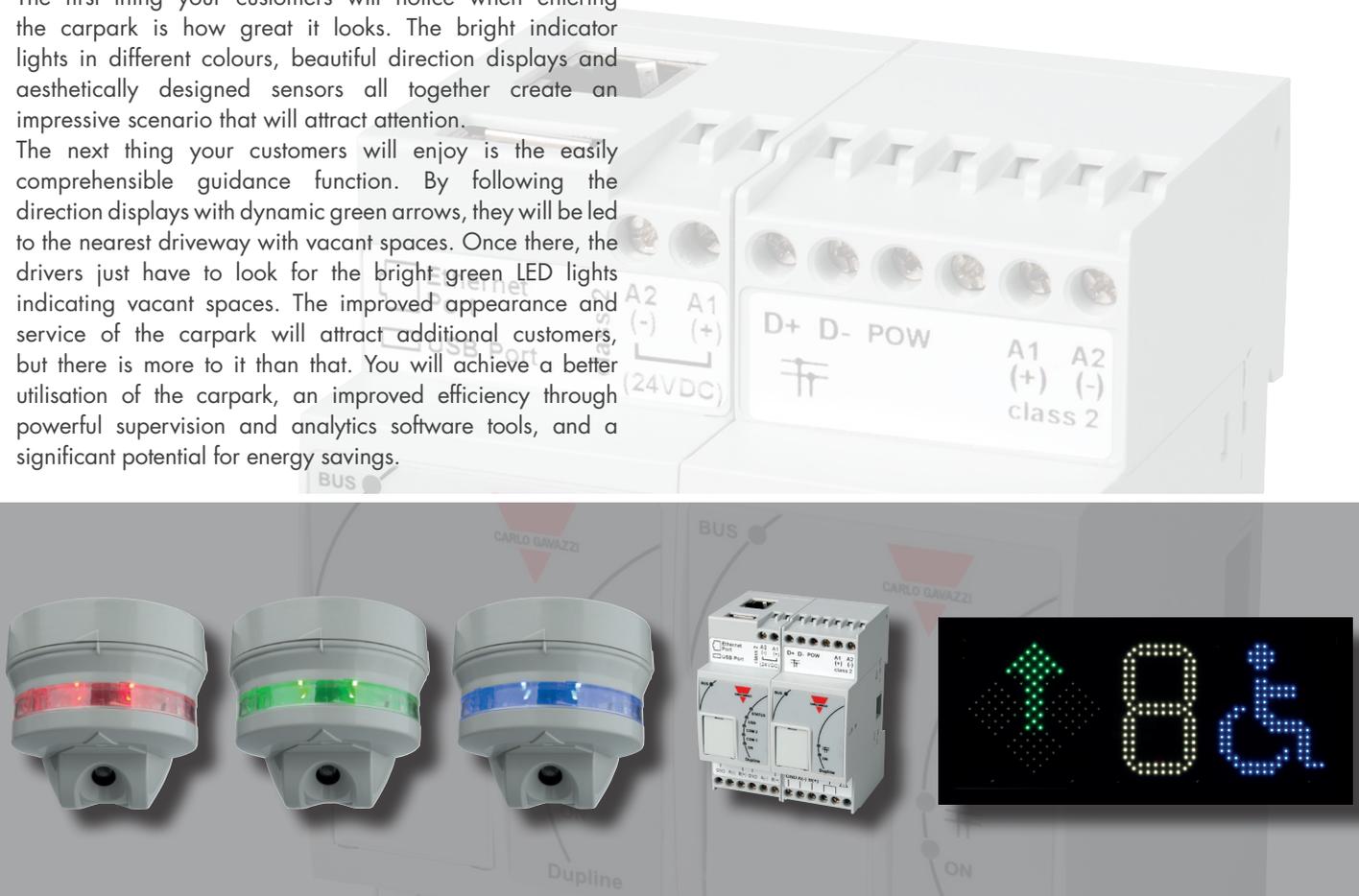
Fieldbuses

Carpark 3

Parking guidance system

The first thing your customers will notice when entering the carpark is how great it looks. The bright indicator lights in different colours, beautiful direction displays and aesthetically designed sensors all together create an impressive scenario that will attract attention.

The next thing your customers will enjoy is the easily comprehensible guidance function. By following the direction displays with dynamic green arrows, they will be led to the nearest driveway with vacant spaces. Once there, the drivers just have to look for the bright green LED lights indicating vacant spaces. The improved appearance and service of the carpark will attract additional customers, but there is more to it than that. You will achieve a better utilisation of the carpark, an improved efficiency through powerful supervision and analytics software tools, and a significant potential for energy savings.



Revolutionise your parking facility with Carpark 3

Better utilisation - higher revenue

The utilisation of the carpark, and thereby the revenue, will increase, especially in busy carparks with high occupancy rates. The guidance system will lead customers directly to those hard-to-find spaces making sure they become utilised as soon as possible after they have become empty. The customers will not be reluctant to enter the carpark when only a few spaces are announced vacant because they know they will get guidance.

Less driving – less energy usage for ventilation

You will also notice that the flow of cars changes in the carpark. It will be much more calm and quiet than before because the drivers have no confusion about where to go. As a result, the driving in the parking facility will be reduced by 20% or more leading to reduced energy usage for ventilation.

Energy savings through demand-based control of lighting and ventilations

In carparks, lighting and ventilation are the two big energy consumers, and in many cases, the systems are switched on 100% continuously. This represents a significant

potential for energy savings through intelligent demand based control where lighting levels are based on the presence of people and cars, and the speed of ventilation fans is based on actual measured CO levels.

Carpark 3 offers the unique feature to exploit such opportunities effectively within the same system and, in addition, to be linked to the building's overall BMS through BACnet.

Higher efficiency through a powerful carpark management software

The carpark management software is included as a web server in the carpark controller, and this represents several valuable features that will help you to run the carpark efficiently. The carpark operator will be able to monitor the real-time status of the entire carpark through a graphical user interface and take action in case of alarms or high occupancy rates. Spaces for specific purposes can be reserved manually by selecting a specific colour for the LED indicators, or you can set up the scheduler to do so based on a calendar. All parking events are logged into the database, which forms the base for a powerful tool allowing you to analyse and improve the performance of the carpark.

Industrial-grade system based on years of experience

Since Carlo Gavazzi's first launch of a parking guidance system almost ten years ago, there has been an ongoing process to continuously improve the system based on feedback from our customers and new technologies. Now we are proud to present the 3rd generation, which meets our customers requests for easy and fast installation and commissioning,

aesthetic and clearly visible indicators and displays, simplified infrastructure and the possibility of energy savings through lighting and ventilation control in the same system.

With decades of experience with sensor and fieldbus technology for the industrial sector and presence with own sales companies in 23 countries worldwide, we are in the right posi-

tion to support you with reliable and robust technology, with the availability of local support from product specialists. Furthermore, you can rely on us for spare part availability for maintenance many years ahead, because this is the way we are used to working in the industrial sector.

45° Ultrasonic sensor for detection of cars

The ultrasonic sensor with integrated high-bright RGB LEDs is a key component in the parking guidance system. At the entry point of each space is mounted a sensor that emits a sound wave towards the space at regular intervals and then analyzes the received echo to detect if a car is

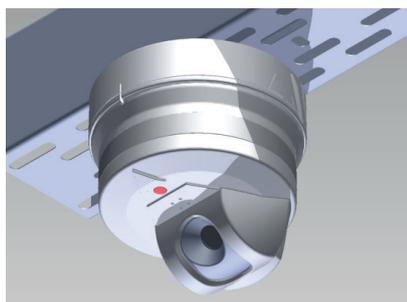
present or not. By default, the sensor will show green LED light for vacant status and red for occupied status, but the user can change the colour combination at any time through the user interface in order to reserve spaces for specific purposes (disabled, VIPs, electric cars...).

- Mounted at the entry of the space, it eliminates the need to have separate sensors and indicators
- RGB multi-colour LEDs are clearly visible to the drivers at a 360° viewing angle
- Mounting bases available for ceiling, cable tray and installations with pipes/tubes
- Sensors can be replaced without reconfiguration, because the address is saved in the base
- Detachable push-wire terminals in the base with bus-in and bus-out connections
- Protected against water entering from the ceiling



Mounting options

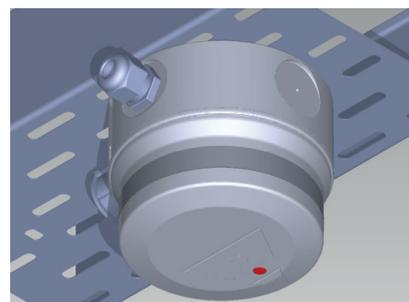
Sensor with type A base holder for cable tray



Sensor with type A base holder for conduit



Indicator with type B base holder for ceiling mounting



Carpark 3

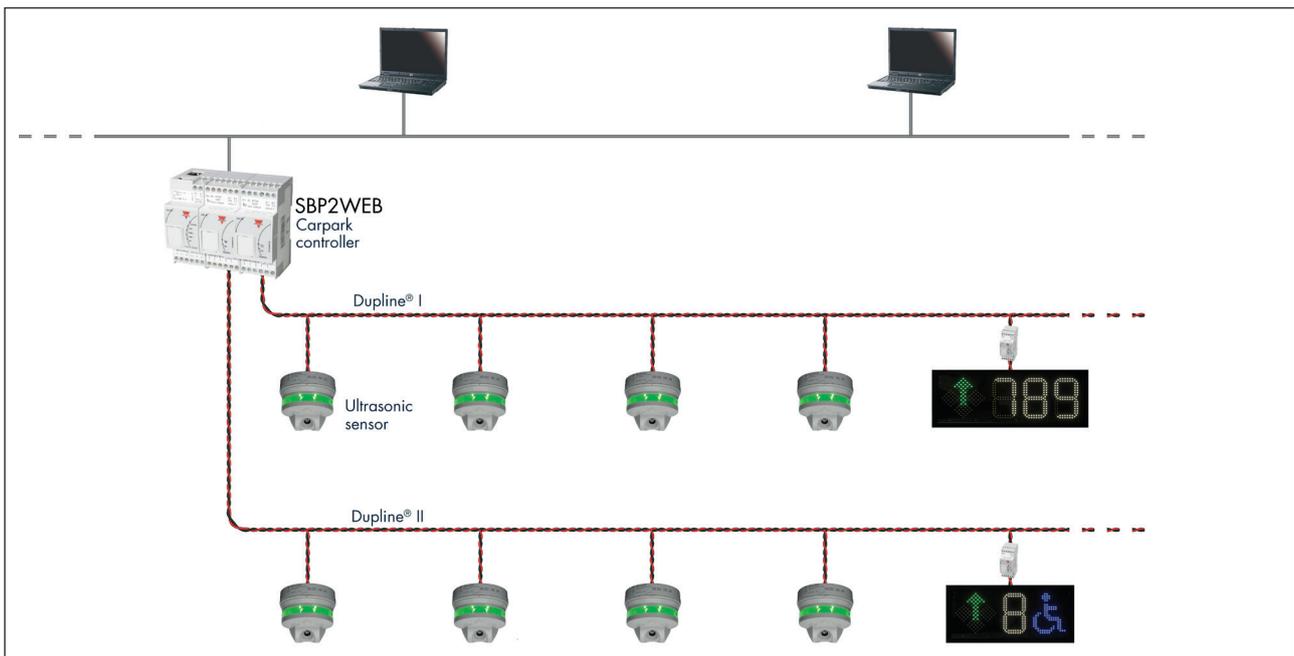
Parking guidance system

A simple basic network infrastructure makes design and implementation easy

A basic Carpark 3 system is comprised of a number of segments with ultrasonic sensors and direction displays. Each segment of a 3-wire bus for power and communication to the devices is driven by a master generator, which can manage up to 90 sensors. The carpark controller links all the segments together and performs the intelligent functions like reading the status of the sensors

and updating the displays accordingly. These networks components are compact and small and very cost-effective, making Carpark 3 attractive even for small installations. But at the same time, the system is also completely scalable to very large systems as multiple carpark controllers can be linked together through the TCP/IP network.

The configuration of the entire system is done from a central point through a PC-based programming tool, which simplifies commissioning significantly. The tool automatically scans the entire network to find all the connected devices, which subsequently are available to be configured inside the tool in a very simple way.



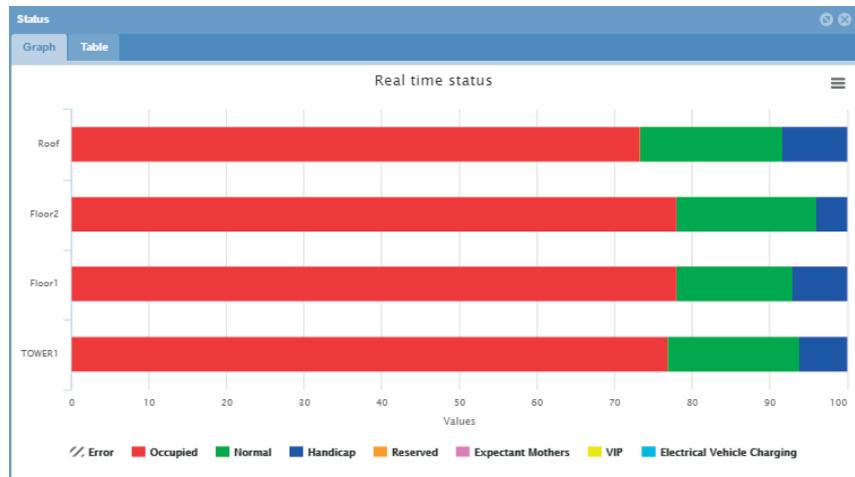
Carpark management through built-in web server

The carpark controller provides a graphical user interface and management tool via the built-in web server. This means it can be accessed from any PC on the network through a standard browser. This software provides a complete overview of the status of the carpark in real-time. The status of each bay and the displays can be monitored through the graphical user interface, and occupancy rates for the different types of spaces at the various levels and areas of the carpark can be seen as bar graphs. Alarms like for instance "space 2.25 exceeding max parking time" or "Level 3 occupancy exceeds 90%" pops up on the screen and goes into the alarm log, allowing the operator to take immediate action if needed.



Booking of spaces and statistical analysis

Through the software, the operator can also book or reserve spaces by manually changing the colour code for these spaces, or the built-in scheduler can be used. The report part of the software allows analysis of historical data like “number of parking events per day”, “average parking time” etc., either per space or per group of spaces. Also, the occupancy rates for the various types of spaces at the different parts of the parking facility can be analysed on trend graphs, which is a useful tool to understand the operation of the carpark and the possibilities to improve.



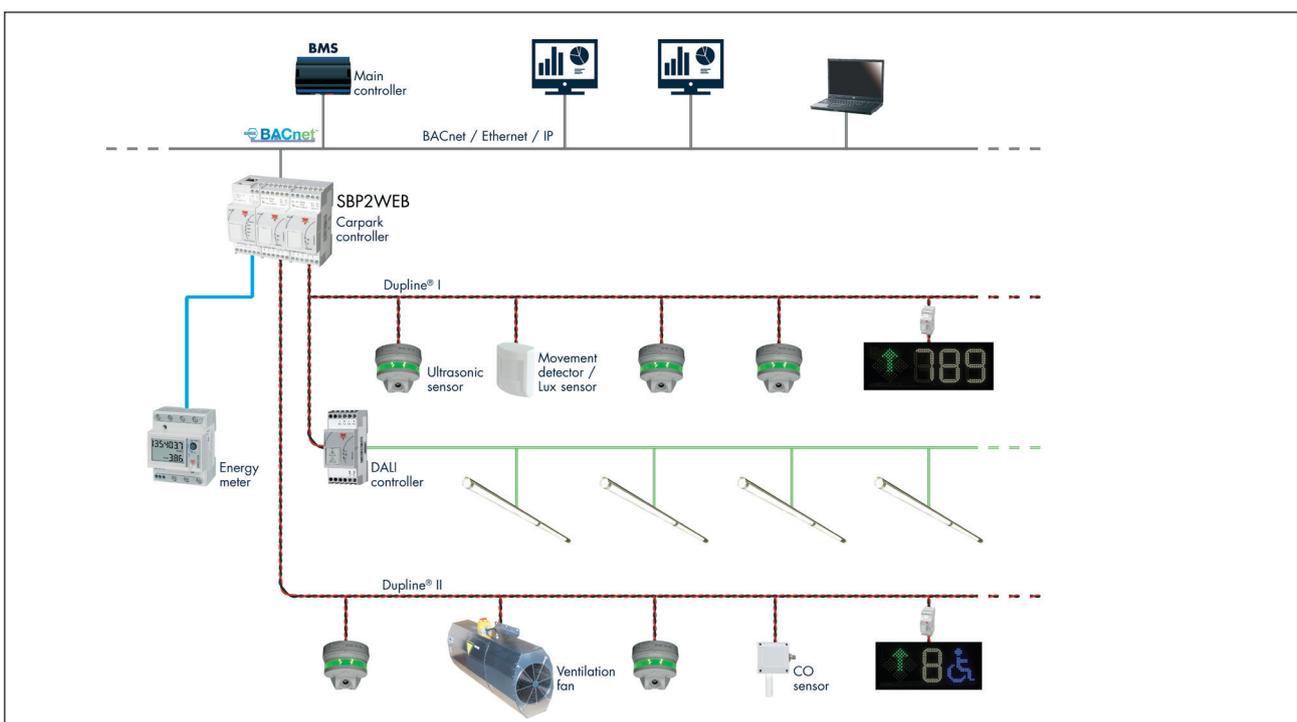
Energy savings through demand-based control of lighting and ventilation

A unique feature of Carpark 3 is the option to integrate demand-based control of lighting and ventilation into the same system. A seamless integration into the BMS through BACnet is also possible. This because Carpark 3 has been based on Carlo Gavazzi's smart building platform with an extensive product range and intelligent controller functions available. To make use of this option is basically a question of adding

movement detectors and DALI masters or relays for lighting control, and CO sensors and analogue I/O's for ventilation control. Lights can be dimmed or turned off, when no people or cars are present, and the speed of ventilation fans can be reduced or turned off, in case the CO level is low.

One can say, that the controls and network infrastructure for the parking guidance system are already paid for,

so the additional investment to implement the energy savings is much less than it would have been if a new installation had to be made. And even if the initial project is to implement parking guidance only, the Carpark 3 solution will provide you with a system that is ready for later investments and energy savings.



Carpark 3

Parking guidance system

45° ultrasonic sensor

SBPSUSL45



- Ultrasonic sensor with a 45-degree detection angle for mounting outside the parking space
- Power and communication via the Dupline® 3-wire bus
- Clearly visible LED indication in a 360-degree viewing angle
- 8 freely selectable colours
- Programming and test over network by use of the central PC-based configuration software
- Protected against dust and moisture
- cULus approved

Vertical ultrasonic sensor

SBPSUSL



- Ultrasonic sensor with a vertical detection angle for mounting directly above the car
- Power and communication via the Dupline® 3-wire bus
- Clearly visible LED indication in a 360-degree viewing angle
- 8 freely selectable colours
- Programming and test over network by use of central PC-based configuration software
- Protected against dust and moisture
- cULus approved

LED indicator

SBPILED



- LED indicator
 - Power and communication via the Dupline® 3-wire bus
 - Clearly visible LED indication in a 360-degree viewing angle
 - 8 freely selectable colours
 - usually operates in conjunction with the sensor SBPSUSL
 - One indicator can monitor multiple sensors
 - The LED colour can be controlled from PC software or controller
- Protected against dust and moisture
- cULus approved

Ultrasonic sensor

SBPSUSCNT



- Vertical sensor to be mounted directly above the driving lane,
- Designed for detection of moving cars in a count system
- Easy and fast installation
- No maintenance of the sensor
- Programming from central PC based configuration tool
- Detection of cars running at speeds up to 20Km/h
- cULus approved

Base holder

SBPBASEx



- Base A and B can be used to together with all types of Carpark 3 sensors and LED indicators
- Plug-and-play installation
- Knock-outs for mounting/conduit/pipe connection
- On board address chip with SIN code
- cULus approved

Master generator

SBP2MCG324



- Provides the Dupline® 3-wire bus with DC power and communication
- Operates in conjunction with the Carpark controller SBP2WEB24
- Load current up to 2.6 Amp
- Connects up to 90 Carpark sensors via the Dupline® 3-wire bus
- Max. 50 Carpark sensors in one line
- DIN-rail mounting
- cULus approved

Controller

SBP2WEB24



- Controls the parking system
 - Optional functions for lighting and ventilation control
 - Manages up to 7 Dupline® networks, each with up to 90 Carpark sensors
- Option for linking up to 10 controllers together with the SBP2CPY24 Carpark server
- Seamless integration with BMS through BACnet/IP
- Built-in webserver for Carpark management software
- User-friendly PC-based configuration
- cULus approved

Web-based server

SBP2CPY24



- Carpark server which links together up to 10 SBP2WEB24 Carpark controllers
- Manages the parking guidance system
- Built-in web server with parking management software
- Data export in Excel® format
- One Ethernet port
- 12 to 28 VDC power supply
- DIN-rail mounting
- cULus approved

Display interface

SBP2DI48524



- Interface between the Dupline® bus and display
- Plug-and-play installation
- Can be mounted up to 300 m away from the display
- LEDs for indication of communication status
- Compact 2-DIN housing suitable for a decentralized installation
- cULus approved

Displays

SBPDISxAxHx



- Robust and aesthetic display in aluminium
- Brightly lit green-arrow or red-cross LEDs
- Blue sign for disabled and/or one bright white digit
- Visible at a distance of more than 50 m
- Automatic brightness control
- Settings are configurable from the configuration software via a simple menu
- Same display for indoor and outdoor use
- Option for heated display with an extended temperature range below -20°C

SBPDISxxxx



- Robust and aesthetic display in aluminium
- Brightly lit green-arrow or red-cross LEDs
- Bright white LED digits
- Visible at a distance of more than 50 m
- Automatic brightness control
- Settings are configurable from the configuration software via a simple menu
- Same display for indoor and outdoor use
- Option for heated display with an extended temperature range
- 24 VDC powered

SBPDIS9x



- Robust and aesthetic display in aluminium
- White LED, 16 x 96 pixels
- Option for text and numbers in combination
- Wide vocabulary. For instance "OPEN 9999" and "CLOSED"
- Visible up to 50 m
- Automatic brightness control
- Settings are configurable from the configuration software via a simple menu
- Same display for indoor and outdoor use
- Option for heated display with an extended temperature range below -20 °C
- 24 VDC powered

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