Система навигации при парковке

Технические характеристики

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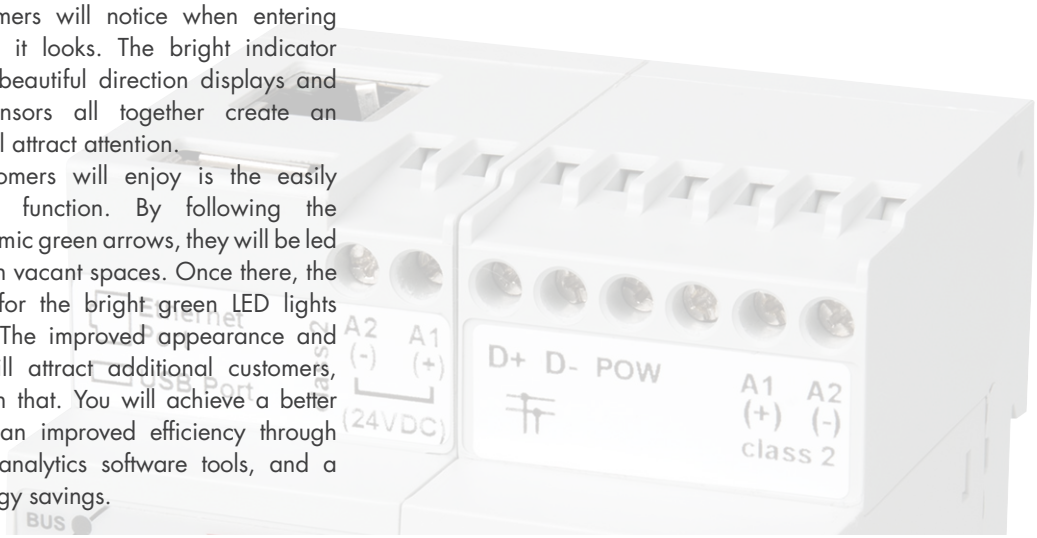
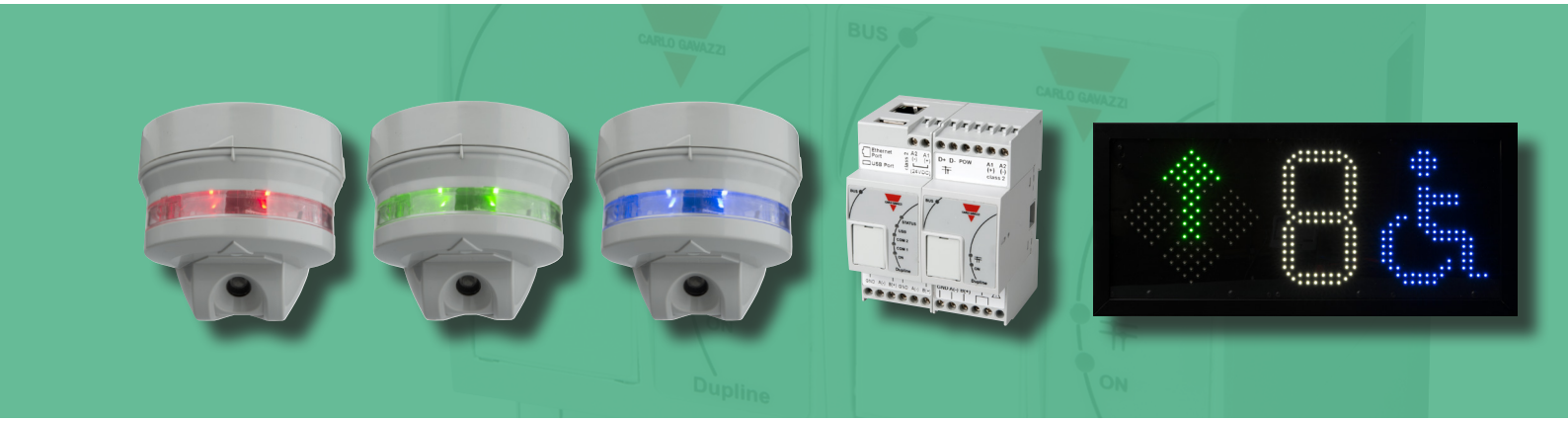
cgo@nt-rt.ru || https://gavazzi.nt-rt.ru/

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.

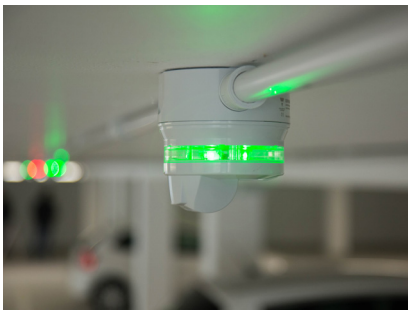
Industrial-grade system based on years of experience

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 3'rd 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 in sensor and fieldbus technology for the industrial sector and presence with own sales companies in 23 countries worldwide, we are in the right position 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

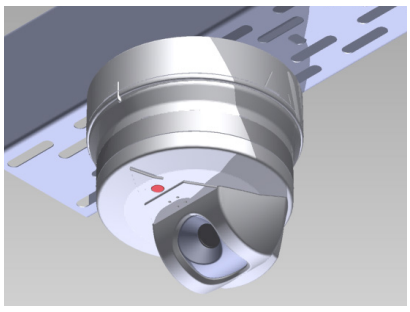
The ultrasonic sensor with integrated high-bright RGB LEDs is a key component in the parking guidance system. At the entry point of each space is mounted a sensor that emits a sound wave towards the space at regular intervals and then analyses the received echo to detect if a car is present or not. By 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

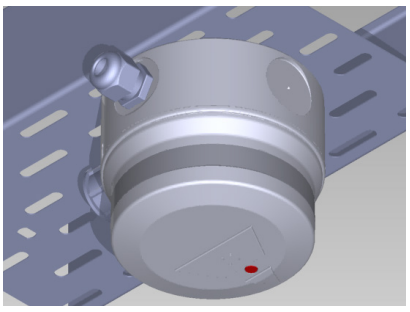
Mounting options

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

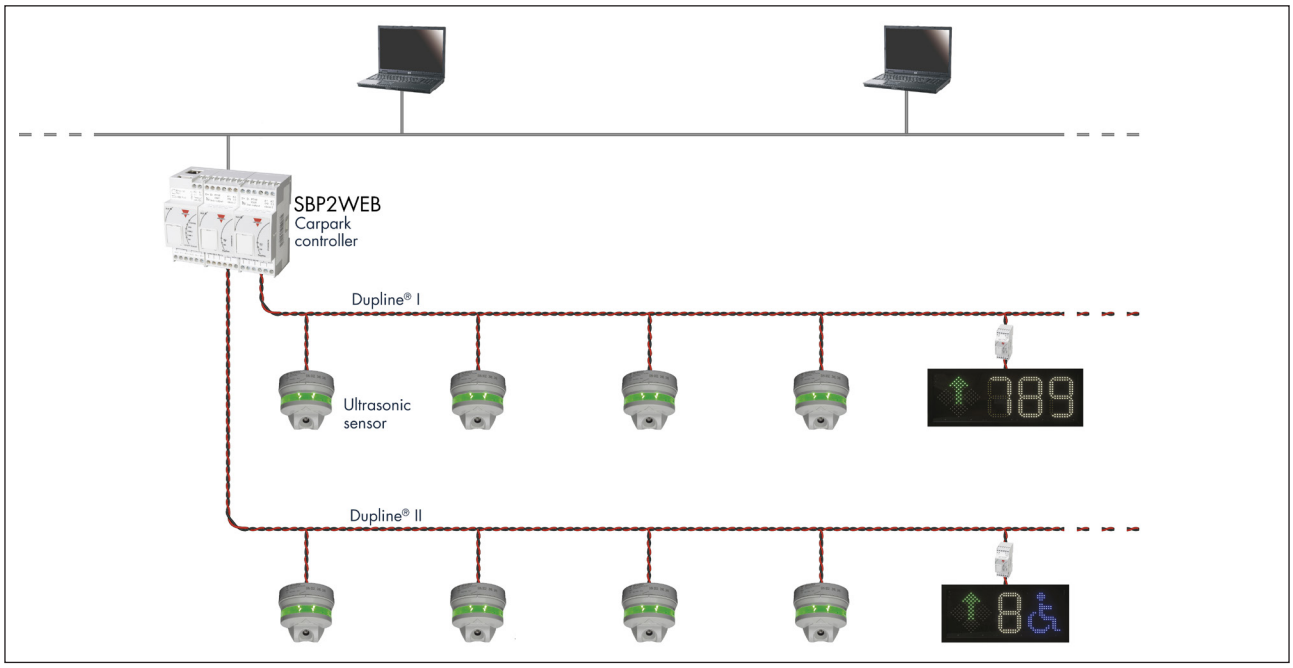


Carpark 3
Parking guidance system

A simple basic network infrastructure makes design and implementation easy

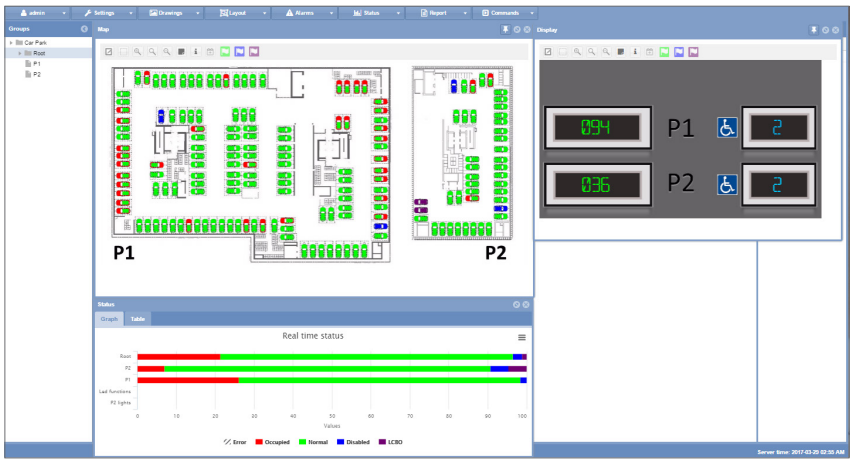
A basic Carpark 3 system is comprised of a number of segments with ultrasonic sensors and direction displays. Each segment of a 3-wire bus for power and communication to the devices is driven by a master generator, which can manage up to 90 sensors. The carpark controller links all the segments together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



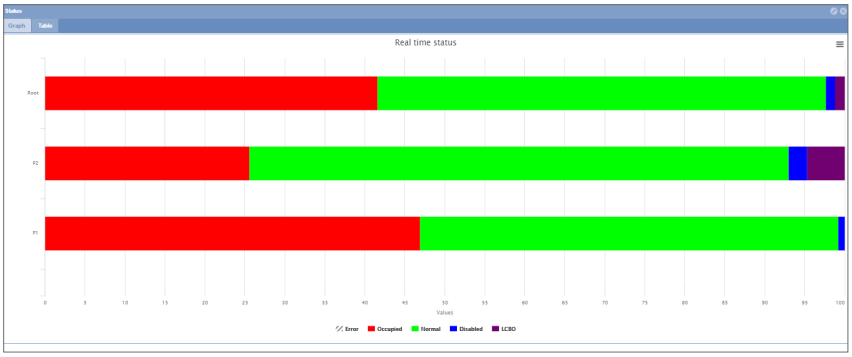
Carpark management through built-in web server

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

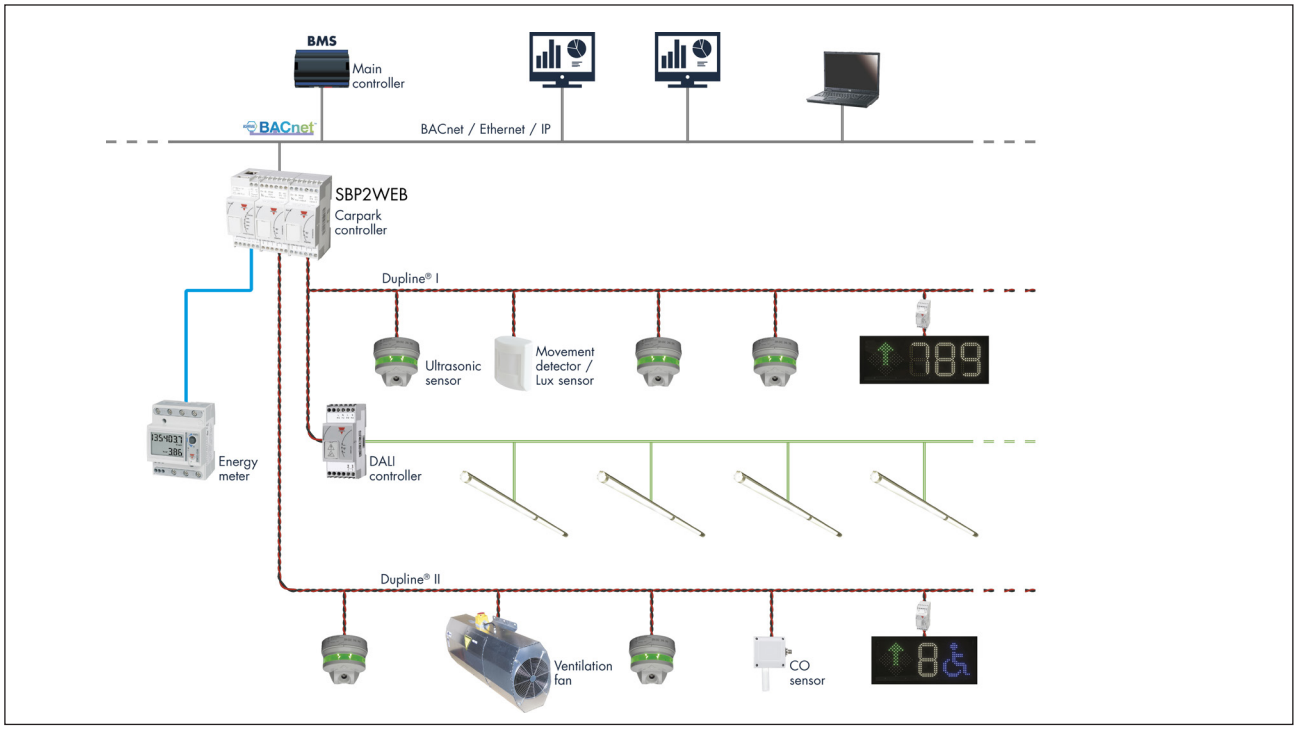
Through the software, the operator can also book or reserve spaces by manually changing the colour code for these spaces, or the built-in scheduler can be used. The report part of the software allows analysis of historical data like "number of parking events per day", "average parking time" etc., either 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 out-door 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 out door 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 out door use
- Option for heated display with an extended temperature range below -20 °C
- 24 VDC powered

SBPCWSI1

Carpark concentrator

Benefits

- **Long Range wireless communication.** 250 m in typical conditions.
- **Wide range power supply.** It works with 6-36 VDC and 100-230 VAC.
- **Flexible installation.** It is suitable for wall or pole mounting.
- **IP66 rated housing.** For indoor and outdoor use.

Description

The concentrator is part of the Carpark system, which contains other variants of sensors, controllers and displays.
The SBPCWSI1 is a compact Long Range wireless gateway designed to collect occupancy information from SBPWSI1 sensors.
The occupancy information is transmitted to the cloud in real-time by means of the wireless 4G/LTE cellular network or LAN connection and UWP3.0/ SBP2CPY platform gathers data by means of the cloud.

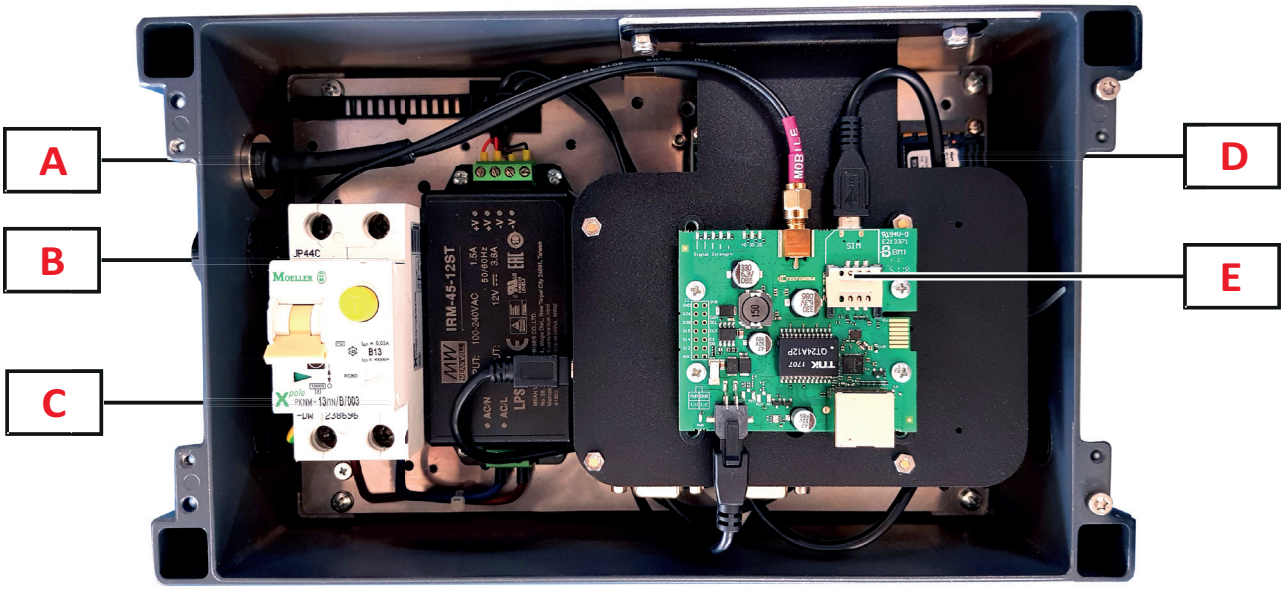
Applications

Parking Guidance Systems

Main functions

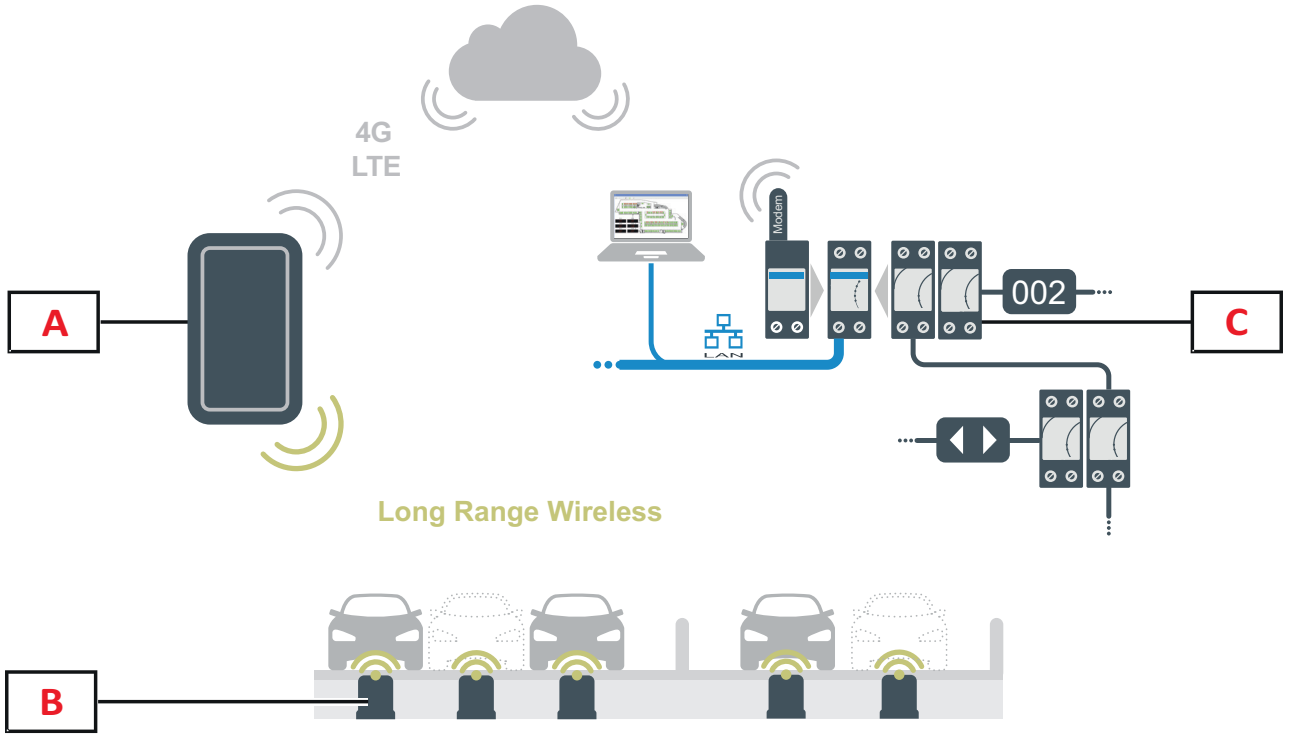
- Long Range wireless gateway for SBPWSI1 sensors.
- Collects occupancy information.

Structure



Element	Component	Function
A	Connector	To connect the Long Range wireless antenna
B	Connector	To connect the 4G/LTE cellular antenna
C	Knockout openings	To connect power and Ethernet
D		
E	4G/LTE router with SIM slot	To insert the SIM card

Architecture

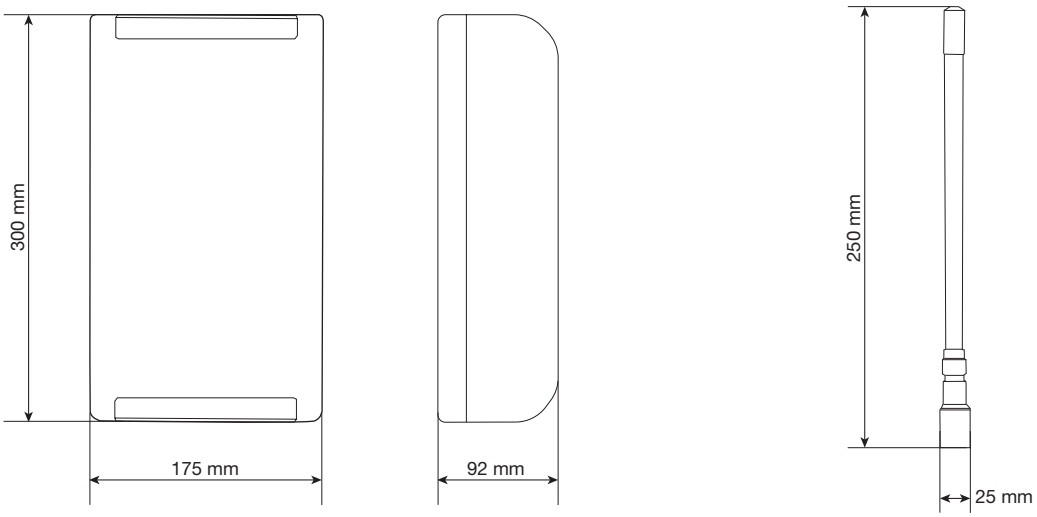


Element	Component	Function
A	SBPCWSI1 concentrator	Collects via Long Range wireless the bay status that is sent by each sensor in real-time.
B	SBPWSI1 sensor (Long Range wireless mode)	Detects changes to the earth's magnetic field caused by the presence of ferrous objects (cars).
C	UWP 3.0/SBP2CPY system	Receives via cloud the data collected by SBPCWSI1 gateways. The bay status is managed in the same way as all the other sensors (ultrasonic, IP camera).

Features

General

Type	Small cabinet
Material	Metallic, light grey
Dimensions	300 mm x 175 mm x 92 mm
Antenna dimensions	Ø 25 mm x 250 mm
Weight	5.0 Kg
Protection degree	IP66
Number of managed sensor	Depends on the environment conditions
Network adapters	Ethernet port 10/100/1000 Mbps



Environmental

Operating temperature	-20 to 60°C (-4 to 140°F)
Storage temperature	-30 to 70°C (-22 to 158°F)
Humidity (non-condensing)	< 95%

Compatibility and conformity

Approvals	CE
Conformity	Directive RED 2014/53/EU Low Voltage Directive 2014/35/EU Electromagnetic Compatibility Directive 2014/30/EU

Power Supply

Power supply	SBPCWSI124	6-36 VDC
	SBPCWSI1230	100-230 VAC, 50-60Hz
Maximum rated operational power		60 W

Communication

Long Range wireless

Protocol	Long Range wireless
Configuration parameters	By means of the Sensor Manager software
Frequency	ISM, 868 MHz (EU)
Transmission power	14 dBm
Maximum receiving sensitivity	-137 dBm
Encryption	Embedded end-to-end AES128
Communication distance	250 m Note: maximum distance depends on the enviroment conditions
Antenna	High-performance with N-female connector, cable length 0.5 m

Network connectivity

Connection method	Network adapter
LAN connection	Ethernet port
4G/LTE cellular	Integrated 4G/LTE router **Important:** a Mini SIM (2FF) is required with at least 5GB/month data plan; M2M SIM type is not reccommended.

References

Further reading

Information	Document	Where to find it
Installation manual	IM SBPCWSI124_SBPCWSI1230	
	IM SBPWSI1	
User manual	Sensor Manager software	

Order code

SBPCWSI1□

Complete the code entering the corresponding option instead of □

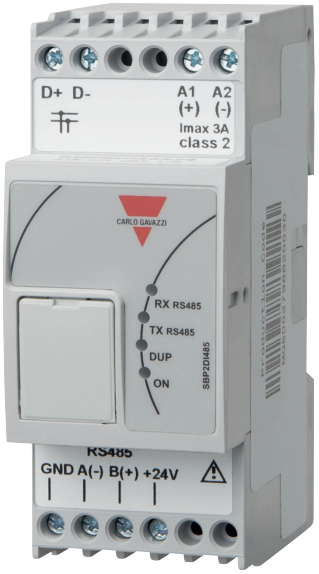
Code	Options	Description
SBP	-	Carpark
C	-	Concentrator
W	-	Wireless
SI	-	Sensor
1	-	Long Range wireless
□	24	6-36 VDC power supply
	230	100-230 VAC power supply

CARLO GAVAZZI compatible components

Purpose	Component name/code key	Notes
Wireless sensor	SBPWSI1	
Controller	UWP30RSEXXX	
Carpark server	SBP2CPY24	

SBP2DI48524

Dupline® Carpark Display Interface



Benefits

- Plug and play installation
- Can be mounted up to 300 m away from the display
- LED's for indication of communication status
- Compact 2-DIN housing suitable for decentral installation

Description

The SBP2DI48524 Display interface module is part of the Dupline® Carpark system which contains other variants of sensors, controllers and displays. The SBP2DI48524 is a Dupline® to Modbus RTU converter and acts as an interface between Dupline® and the Carpark displays.
The module is connected to the display via RS485 and is normally installed close by, but can be installed up to 300m from the display.

Applications

Parking Guidance Systems

Main functions

- Acts as an interface between Dupline® and the carpark displays

Features

Power Supply

Rated operational voltage	24 VDC (±20%), 20 mA, CL.2
Rated operational power	300 mW (display excluded)
Reverse-polarity protection	Yes
Connection	A1 (+) 24 VDC A2 (-) 24 VDC D+ Dupline® bus D- Dupline® bus A (-) RS485 bus for display B (+) RS485 bus for display GND 24 (internally connected Max 5.5 A + display) Be sure to use correct power supply. The display is powered through the SB-P2DI48524 and the internal connection can max handle 5.5 A.
Power-ON delay	Typical 2 s
Power-OFF delay	≤ 1 s
Modbus specifications	- RS485 - Max one display can be connected - Integrated display protocol based on modbus RTU

Dupline® specifications

Dupline® voltage rated	8.2 V
Maximum Dupline® voltage	10 V
Min. Dupline® peak voltage	5.5 V
Maximum Dupline® current	1.1 mA

The Dupline® bus is present on the terminals D+/D-.

LED indication

Green LED	Power status	ON: supply ON OFF: supply OFF
Yellow LED	Dupline® LED	If the Dupline® bus is working properly, it is always ON. If there is a fault on the bus, it will be flashing. It is OFF, if the bus is OFF or not connected.
	TX modbus	Led flashes when module sends a modbus request to display.
	RX modbus	Led flashes when display replies to a modbus request.

Environmental

Ambient temperature	-20°... +50°C (-4°... +122°F)	Operating
	-50° ... +85°C (-58° ... +185°F)	Storage
Degree of protection	Front	IP50
	Screw terminal	IP20
Pollution degree	2	IEC 60664-1, par. 4.6.2
Installation category	III	
Humidity (not condensing)	20 ... 80% RH	
Dielectric strength	Power supply to Dupline® and display to Dupline®	4 kVAC for 1 min. 6 kV impulse 1.2/50us

EMC

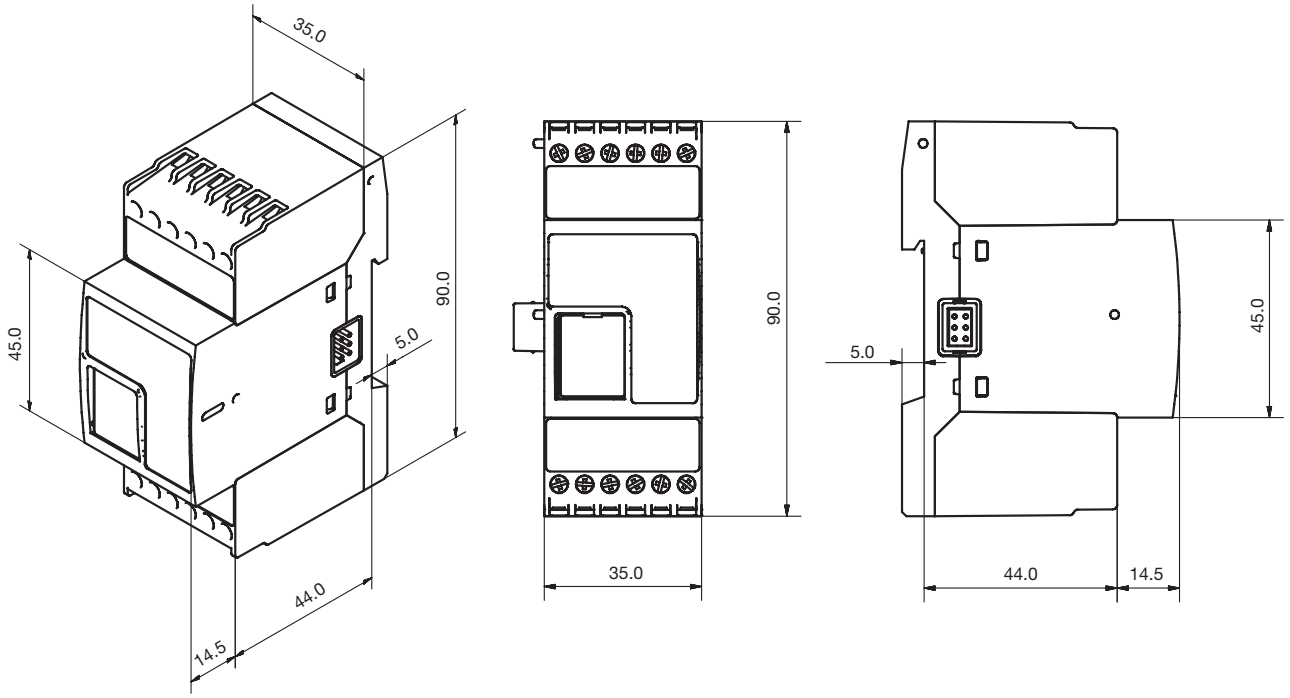
Immunity	EN61000-6-2
Emission	EN61000-6-3

Mechanics

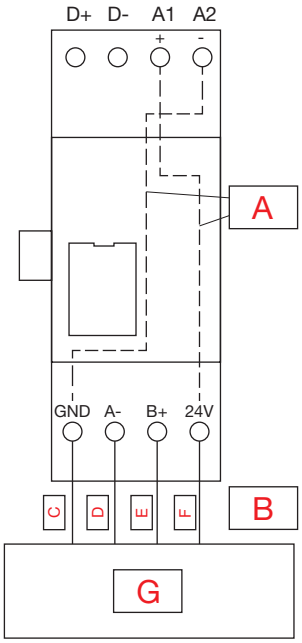
Housing

Dimensions	2 DIN module
Housing material	Noryl
Weight	120 g

Dimensions (mm)



Wiring



A	Internal jumper Max 5.5 A	**E**	Yellow
B	Cable distance between display and module is max 300 m.	**F**	Red
C	Black	**G**	Display
D	White		

Connection

Terminal	8-screw type
Cable cross-section area	Max. 1.5 mm^2
Tightening torque	0.4 Nm / 0.8 Nm
RS485 cable	Max 300 m from module to display

Compatibility and conformity

Approvals

CE-marking	CE
Approvals	c UL us

UL notes

- This product is intended to be supplied by a Listed Information Technology Equipment AC Adaptor marked NEC Class 2 or LPS
- Max ambient temperature: 50°C (122°F)

Mode of operation

The SBP2DI48524 is a Dupline® to Modbus RTU converter that is used as an interface between Dupline® and the carpark displays.
The module has no DIP-switch settings, but is configured from the SBP2WEB24 controller configuration software.
Each display must be connected to one SBP2DI48524 module and it can be connected in close range from the display or in a cabinet in a far distance from the display.
When connected and configured, the display interface module has two yellow LED for Tx and Rx. Both LEDs will flash if the transmission is ok.
The SBP2DI48524 continuously checks for presence and correct operation of the display.

Address assignment

Automatic: the controller recognises the module through the SIN (Specific Identification Number) that has to be inserted in the SBP2WEB24

References

Product selection key

SBP2DI48524

SBPVBE

Carpark videobox

Benefits

- **Cameras management.** Up to 8 IP cameras. One camera covers an average of 40 parking bays: it depends on the mounting height, positioning and IP cameras specifications.The videobox works with a wide range of standard IP cameras.
- **Utmost respect for privacy.** In accordance with the GDPR: after analysing the images, they are automatically destroyed so that there is no trace of sensitive content.
- **Quick installation.** No effect on normal parking activities.

Description

The SBPVBE videobox is part of the Carpark system, which contains other variants of sensors, controllers and displays.
The SBPVBE videobox uses IP cameras to detect cars parked in oudoor parking lot. A sophisticated algorithm converts the camera images into occupancy information: no sensitive data (car plate number, people's faces, etc.) are either sent over the Internet or stored.
This information will be sent to the cloud in real-time and UWP 3.0/SBP2CPY gathers it by means of the cloud.

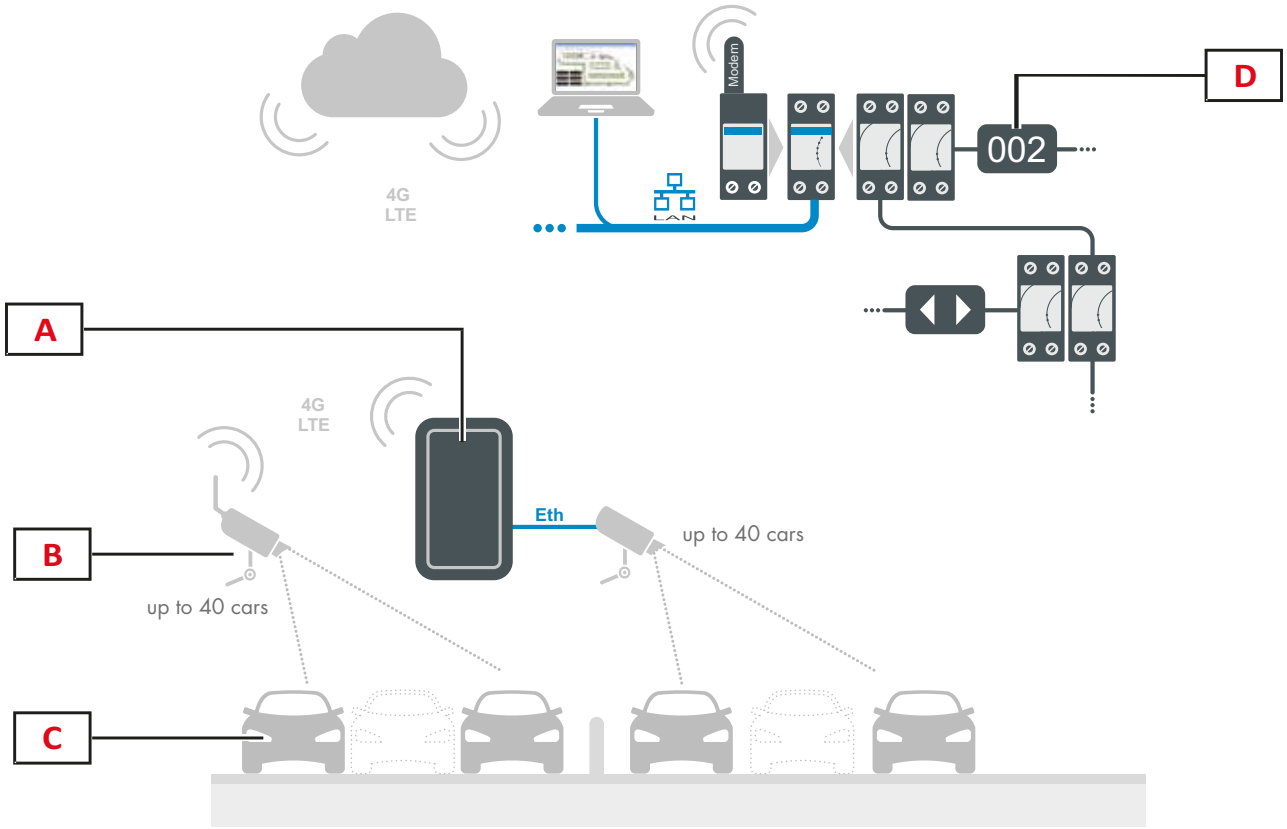
Applications

Parking Guidance Systems

Main functions

- Detection of the occupancy status of outdoor parking bays.
- Autolearning algorithm identifies cars presence with more than a 99% accuracy rate in 30 days.

Architecture

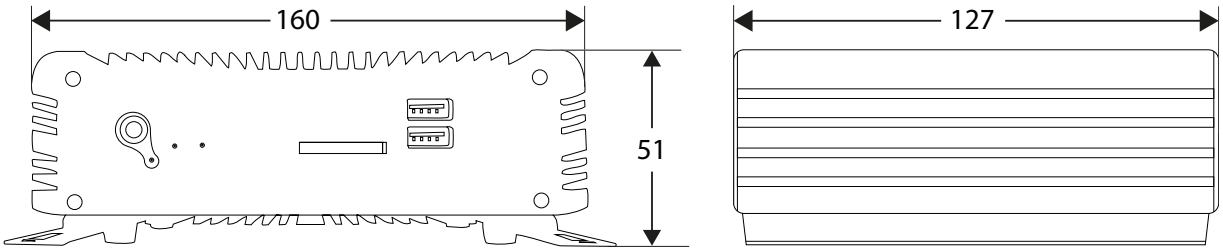


Element	Component	Function
A	SBPVBE videobox	It converts the video-stream into data (occupancy information) and it sends them to the cloud server.
B	IP cameras	They detect the cars presence in the parking bays.
C	Parking bays	
D	UWP 3.0/SBP2CPY System	It gathers occupancy information from the cloud.

Features

General

Type		Fanless Mini-PC
Operating system		Linux
Material		Metallic, black
Dimensions		160 mm x 51 mm x 127 mm
Weight		1000 g
Protection degree	Indoor	IP54
	Outdoor	SBPVBE must be installed into an IP66 box
Number of IP cameras		Max.8 per SBPVBE
Recognition rate		99%
Network adapters		1x RJ45 port 10/100/1000 Mbps



Environmental

Operating temperature	-20 to 60°C (-4 to 140°F)
Storage temperature	-30 to 70°C (-22 to 158°F)
Humidity (non-condensing)	20 to 90% RH

Compatibility and conformity

Approvals	CE
Conformity	EN 60 950-1 (edition 2006; A11: 2009; A1: 2010; A12: 2011)

Power Supply

Power supply		12 VDC
External power supply unit	Input	100-240 VAC, 50-60 Hz
	Output	Max.12 V 5.0 A 60 W
Maximum rated operational power		Typical 30 W

Recommanded IP camera specifications

Features	Recommended specification
Resolution	2 / 4 / 8 Mpx
Pan / tilt / zoom	They must be disabled before configuring the camera with the SBPVBE algorithm
Video data transmission method	LAN network through UTP/STP cable, better if PoE
	4G/LTE network (router is not included)
For an outdoor installation	Required protection degree: IP66 or higher

Note: Regular maintenance guarantees correct functioning of the system. Keep the IP camera's lens clean.

Installation

The SBPVBE videobox can be installed in an indoor or outodoor place and the IP cameras must be connected and configured on the same LAN network.
It is suggested to mount the IP cameras at a height of at least 8 m.
The installation can be performed safely on lamppost, roofs, towers, without visual disturbance, even in historic centres or in the presence of high-value architectures.

References

Further reading

Information	Document	Where to find it
Installation manual	IM SBPVBE	

Order code

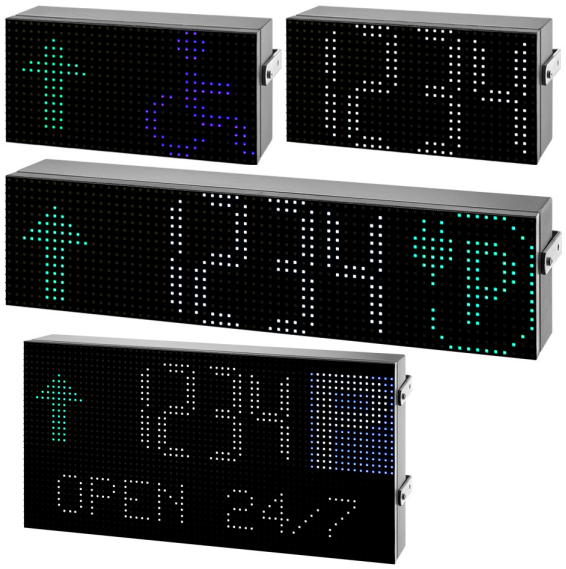
SBPVBE

CARLO GAVAZZI compatible components

Purpose	Component name/code key	Notes
Central gateway	SBPCWSI1	
Controller	UWP30RSEXXX	
Carpark server	SBP2CPY24	

DISxRSE

Carpark Display



Benefits

- Robust and aesthetic look display made of aluminium.
- Bright RGB LED matrix.
- The colour of the numeric digits can be selected between 7 available.
- Digits and symbols displayed in different combinations.
- Viewing distance up to 50 metres.
- Adjustable brightness with 4 light levels.
- Indoor and outdoor use.
- Temperature range down to -30 ˚C.
- Comunication via bus or API.
- Programmable custom messages.
- Programmable digit dimensions.

Description

The DISxRSE displays are part of the Dupline® Carpark system, which contains other variants of sensors, controllers and displays.
It is used for guiding in car park facilities.
The displays can be programmed via the web-based configuration software: the available spaces can be displayed by means of different combinations of digits and symbols.
The displays are compatible with the Carpark systems based on the UWP 3.0/SBP2CPY24 controller and they must be connected to the display interface SBP2DI48524.

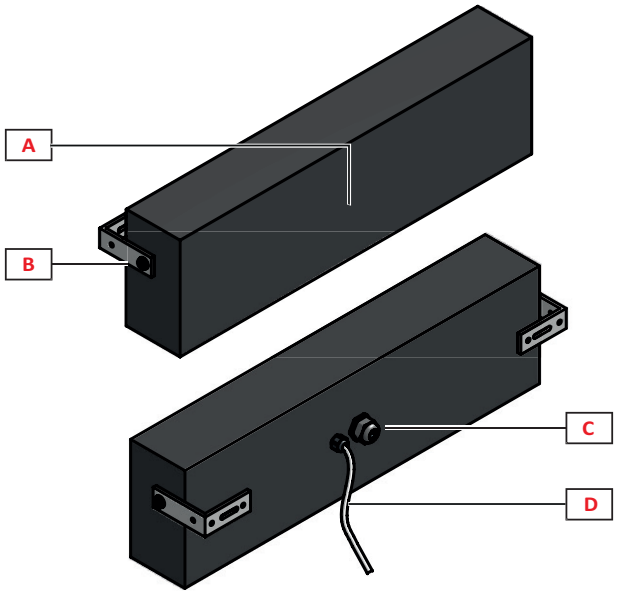
Applications

Display for parking guidance systems.

Main functions

- It shows arrows for direction, available spaces, symbols for category indication (disabled people, electric vehicles,etc..) in a parking area.

Structure



Area	Description
A	RGB LED matrix display
B	Mounting brackets for wall or celing mounting
C	Female Ethernet port
D	4-wire cable for power supply and communication protocol

Features

General

Material	Aluminium
Dimensions (HxWxD)	See fig. 1, 2, 3
Weight	DISARSE: 1800 g DISBRSE: 3200 g DISCRSE: 5500 g
Colour	Black
Protection grade	DISARSE, DISBRSE: IP55 DISCRSE: IP24

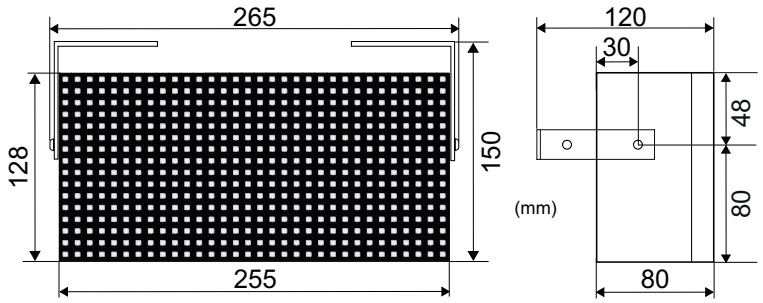


Fig. 1 *DISARSE dimensions*

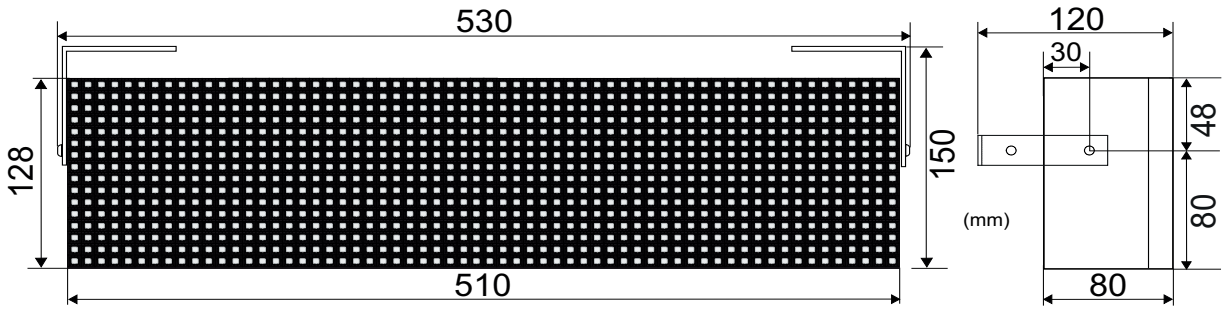


Fig. 2 *DISBRSE dimensions*

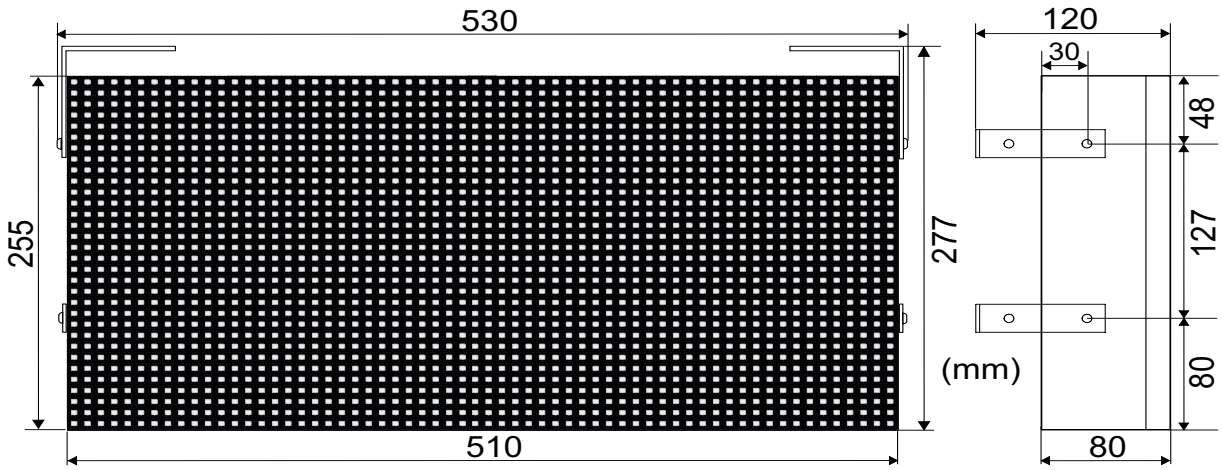


Fig. 3 *DISCRSE dimensions*

Environmental

Operating temperature	-30° to +55°C (-22° to +131°F)
Humidity (non-condensing)	10 to 90% RH

Compatibility and conformity

Approvals	CE

Power Supply

Power supply	24 VDC ± 10%
Maximum rated operational power	DISARSE: 32 W DISBRSE: 53 W DISCRSE: 95 W

Display

Display resolution	DISARSE: 16 x 32 pixel DISBRSE: 16 x 64 pixel DISCRSE: 32 x 64 pixel
Technology	RGB LED SMD
LED lifetime	> 100 000 h
Display type	Dot matrix
Pixel pitch	8 mm
Viewing distance	> 50 m
Brightness control	4 light levels: adjustable via web-based configuration software

Ports

Ethernet

Interface	Ethernet
Protocol	HTTP, SOAP-API Note: the SOAP-API protocol does not require the SBP2DI48524 display interface.
Connection type	RJ45 connector (10 Base-T, 100 Base-TX); maximum distance: 100 m

RS485

Interface	RS485 2-wire
Protocol	Proprietary serial
Baud-rate	4800

Configuration

Connect the display to the SBP2DI48524 interface.
Power the SBP2DI48524 interface.
Configure the display via the integrated web-server by using an Ethernet connection.

There are two types of connections:

- **Ethernet direct connection**

Display and PC are directly connected with an Ethernet cable. A static IP address must be assigned to the PC. Display and PC must have the same IP class and the same subnet mask address.

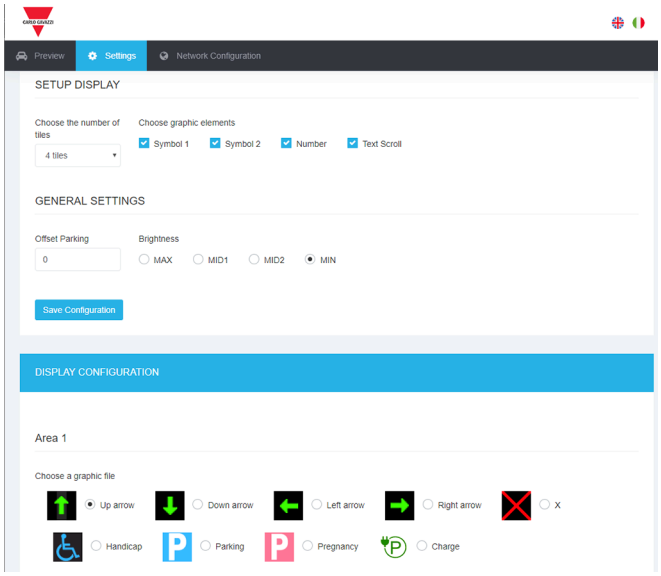
- **Via Router/switch**

Display and PC are connected to the same LAN via a router/switch device. Display and PC are configured with a dynamic/static IP address according to the network parameters.

To access the configuration page, enter the following parameters in a browser:

Parameters	Default value
Default IP address	192.168.1.201
Note: this is the default IP address set in the factory and it will appear on the display at start-up.	
Username	admin
Password	admin

The part number is automatically recognised by the software and all the relevant settings are shown.
Note: the display configuration is thoroughly described in the "Configuration manual".



Areas

Area	Element	Note
1	**Symbol 1**	
2	**Number**	*For the DISARSE display, the maximum number of digits depends on the selected combination (see details below)
3	**Symbol 2**	
4	**Scrolling text**	This area is available only for the DISCRSE part number

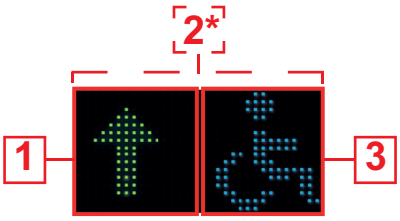


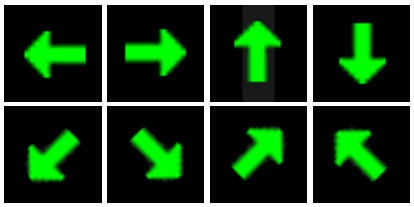
Fig. 4 *DISARSE areas*

Fig. 5 *DISBRSE and DISCRSE areas*

Combinations

Part number	Available configurations	Note
DISARSE	**Two symbols**	One symbol on the left and one symbol on the right, no digits
	One symbol, up to two digits	One symbol on the left or one symbol on the right, up to two digits
	Four digits	No symbols, up to four digits
DISBRSE	**Two symbols, up to four digits**	One symbol on the left and one symbol on the right, up to four digits
	One symbol, up to four digits	One symbol on the left or one symbol on the right, up to four digits
	Four digits	No symbols, up to four digits
DISCRSE	**Two symbols, up to four digits**	One symbol on the left and one symbol on the right, up to four digits
	One symbol, up to four digits	One symbol on the left or one symbol on the right, up to four digits
	Four digits	No symbols, up to four digits
	Scrolling text	An alfanumeric text can be shown in addition to any other above mentioned combination
	Big digits	One symbol on the left or one symbol on the right, up to three big digits. No symbols, up to four big digits

Digits and symbols

Element	Symbols	Colour	Note
Digits	-	Tunable	Seven colours available
Scrolling text	-	Tunable	Seven colours available, up to 100 characters
Direction arrow		Green	The arrow can be set running or steady
Red cross		Red	The symbols can be displayed on both areas (area 1 and area 3). The arrow/cross can be selected in combination with another symbol.
Disabled people		Blue	
Electric vehicle		Light green	
P (Parking)		Blue and white	
Pregnant woman		Magenta	

Full parking event

The display can be programmed to inform when the monitored parking area is full. In the configuration page, there is a dedicated area where the user can set the combinations of text and symbols.
Example: The display can be set to show «FULL» and two red cross symbols.

Custom messages

Up to five custom messages can be set to show warnings or information instead of the available parking bays number. The custom message will be displayed according to the command that is sent by UWP 3.0.

Custom message	Default command value (range)	Notes
1	9001 ÷ 9010	· The symbols cannot be shown · Up to 7 colours available · Scrolling text only on the DISBRSE / DISCRSE models · The text message can be set steady or flashing
2	9011 ÷ 9020	
3	9021 ÷ 9030	
4	9031 ÷ 9040	
5	9041 ÷ 9050	

Connection Diagrams

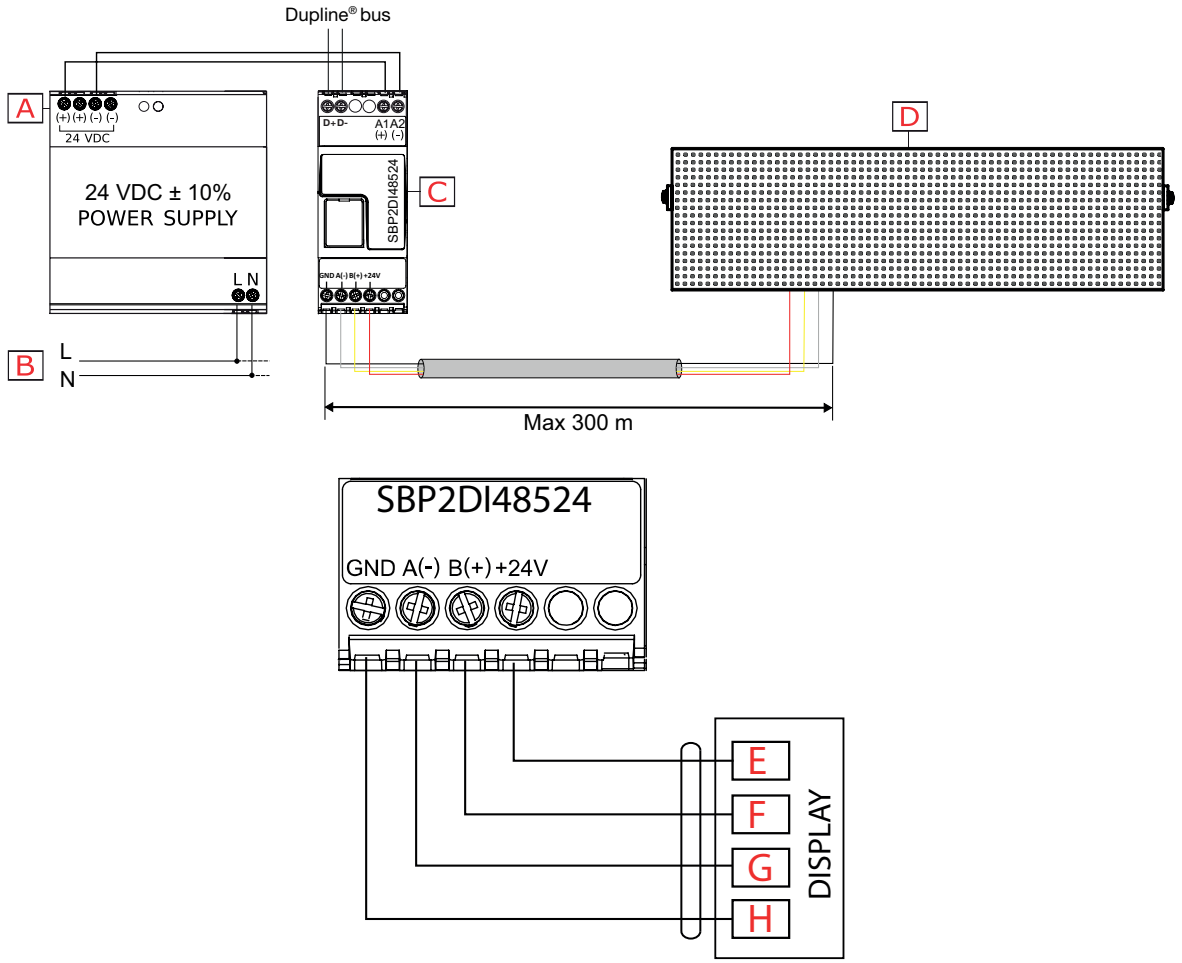


Fig. 6 *Example of wiring*

Element	Description	Element	Description
A	Power supply 24 VDC	**E**	+24 VDC
B	95 to 260 VAC	**F**	RS485 B(+)
C	Display interface SBP2DI48524	**G**	RS485 A(-)
D	DISxRSE display	**H**	GND

4-wire cable

Wire	Colour	Section	Cable length
+24 VDC	Red	0.5 mm²	200 cm
GND	Black		
RS485 B(+)	Yellow	0.22 mm²	
RS485 A(-)	White		

References

Further reading

Information	Document	Where to find it
Carpark installation	CP3 manual	
UWP 3.0 installation guide	System manual	
UWP 3.0 software manual	UWP 3.0 tool manual	
CP3 troubleshooting guide	Troubleshooting guide	
Installation manual	IM_DISARSE	
	IM_DISBRSE	
	IM_DISCRSE	

Order code

DIS□RSE

Complete the code entering the corresponding option instead of □

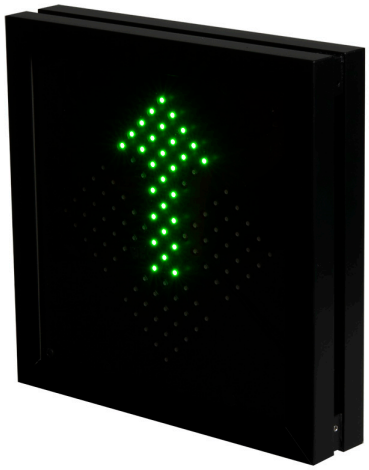
Code	Option	Description
DIS	-	Display
□	A	Up to 4 digits or up to 2 symbols or 2 digits and 1 symbol
	B	Up to 4 digits and up to 2 symbols
	C	Up to 4 digits and up to 2 symbols, area for scrolling text
RS	-	RS485
E	-	Ethernet

CARLO GAVAZZI compatible components

Purpose	Component name/code	Notes
Controller	UWP30RSEXXX	
Bus generator	SBP2MCG324	
Display interface	SBP2DI48524	

SBPDISAx

Dupline® Carpark Display



Benefits

- Robust and aesthetic looking display made of aluminium
- Brightly lit green-arrow or red-cross LEDs
- Visible from 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

Description

The SBPDISAx display is a part of the Dupline® carpark system.
It is used for guiding in car park facilities.
Connected to the display interface SBP2DI48524.
The display shows the direction by means of a green arrow or a red cross.
The programmable display uses high-bright LEDs, which are visible at a distance of more than 50 m - also in bright sunlight.
This display is compatible with Carpark systems based on the SBP2WEB24 controller.
The display is built for both indoor and outdoor environments.

Applications

Display for parking guidance systems.

Main functions

- Show the direction for available spaces in a parking zone.

General specifications

Power Supply

Power supply	≥ 24 VDC
Consumption	5 W (41 W heated version)

Communication

Interface	RS485
Protocol	Modbus RTU
Baud-rate	38400

Display

Technology	LED SMD	
Arrow resolution	Customized design 11 x 11 pixel	
Viewing distance	> 50 m	
Symbols configuration	Cross and arrow symbols	Green arrow and red cross
Brightness control	Automatic or manual	

Fig. 1 *SBPDISA with arrow*

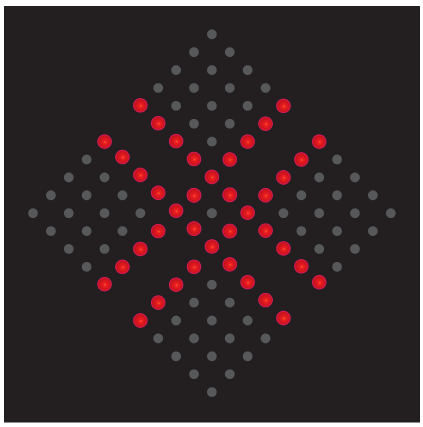


Fig. 2 *SBPDISA with cross*

Environmental

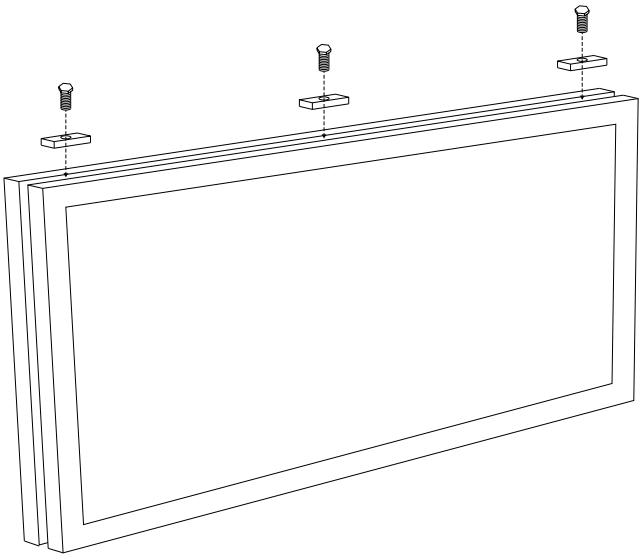
Operating temperature	-20 ... 50°C (-4 ... 122°F) (-40 ... 50°C (-40 ... 122°F) heated version)
Degree of protection	IP54
Humidity	5 ... 90% relative humidity

Mode of operation

The SBPDISAx is a display used for showing the direction of available spaces in a parking zone.
The display is programmable by using the SBP2WEB24 configuration software.
The display must be connected to the display interface adapter SBP2DI48524, which converts Dupline® to Modbus RTU.
By using the carpark software, the installer can decide to let the display show “running “or “steady” arrow.
Directions up, down, right or left can also be selected.
See below the table of programming options.
The display has a 4-wire cable used for connection to the 24 VDC power supply and an RS485 connection, which sends the value to the display.
The display needs to be configured prior to installation.
Programming the display is explained further in the software manual.
The SBP2WEB24 software manual is available

Mounting

The display's aluminium frame has a slit with three 6-mm nuts for mounting.
Using the hammer nuts, the installer can mount the display on the ceiling or the wall.



The display must be mounted by using the included hammer nuts.
Put the hammer nuts in the slit and twist to secure.
Use for instance a threaded rod or screw with 6 mm to secure the display to the wall or ceiling.
Note: Do not open the display in any circumstances, The display and sealing may be damaged. Also, the waranty will be lost.

Options

If the display is mounted in environments with temperatures lower than -20 °C, we recommend to use the display variant SBDISAT.
The “T” indicates a built-in heating element that ensures an operational temperature if the temperature drops below -20°C.

Programming

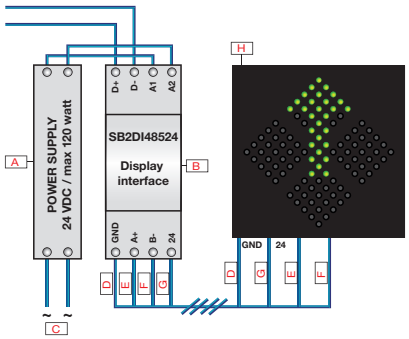
Menu for display programming (Up to 4 digits):
The menu below describes the options when programming the display

1. Arrow selection		
Show arrow when full		
1	Yes	
2	No	Default
Arrow running		
1	Yes	Default
2	No	
Arrow direction		
1	Up	Default
2	Down	
3	Left	
4	Right	
Show Red cross when carpark is full		
1	Yes	Default
2	No	
2. Digit selection		
Show digit when Carpark is full		
1	Yes (show 0)	
2	No (show nothing)	Default
3. Brightness control		
Brightness		
1	30%	
2	50%	
3	75%	
4	Automatic	Default
4. Test		
Display test		
1	Carpark full	
2	Carpark empty	
3	OFF (All LEDs OFF)	Default
4	ON (All LEDs ON)	

Connection Diagrams

Wiring

Wiring example for Dupline® Module SBP2DI48524



Element	Component	Element	Component
A	Power supply 24 VDC/Max. 120 W	**E**	Green
B	Display interface SBP2DI48524	**F**	Yellow
C	95 ... 260 VAC	**G**	Brown
D	White	**H**	Display

Cable

4 x 0,2 mm	
Brown	24 VDC
White	0 VDC (GND)
Yellow	+ RS485
Green	- RS485

Housing

Casing	Aluminium
Front material	Transparent acrylic
Colour	Black
Dimensions (HxWxD)	215 x 215 x 45 mm
Weight	1.0 Kg

Compatibility and conformity

Approvals

CE-marking	CE

References

Product selection key

SBPDISA □

Enter the code entering the corresponding option instead of □

Code	Option	Description
SB	**-**	Smart Building
P	**-**	Parking
DIS	**-**	Display
A	**-**	Arrow
□	**T**	Heating

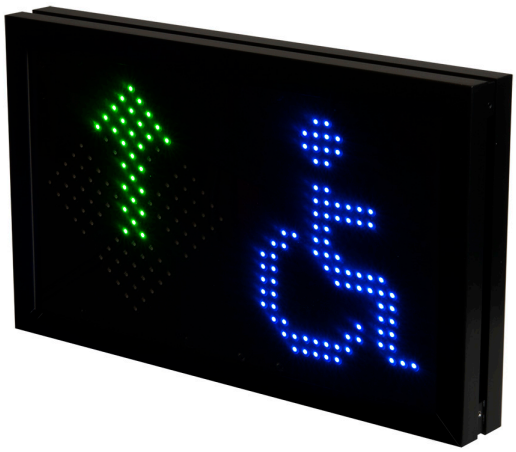
Accessories

- 6 mm hammer nuts for mounting the display. 3 items with ordering number: F00S208HM6

Note: 6 mm bolt and brackets are not included.

SBPDISAxHx

Dupline® Carpark Display



Benefits

- Robust and aesthetic looking display made of aluminium
- Brightly lit green arrow or red cross LEDs and a blue sign for disabled
- Visible from 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

Description

The SBPDISAxHx display is a part of the Dupline® carpark system.
It is used for guiding in car park facilities.
Connected to the display interface SBP2DI48524.
The display shows the direction by means of a green arrow or a red cross.
The sign for disabled is steady blue.
The programmable display uses high-bright LEDs, which are visible at a distance of more than 50 m - also in bright sunlight.
This display is compatible with Carpark systems based on the SBP2WEB24 controller.
The display is built for both indoor and outdoor environments.

Applications

Display for parking guidance systems.

Main functions

- Shows the direction for available spaces for disabled in a parking zone.

General specifications

Power Supply

Power supply	≥ 24 VDC
Consumption	12 W (48 W heated version)

Communication

Interface	RS485
Protocol	Modbus RTU
Baud-rate	38400

Display

Technology	LED SMD	
Arrow resolution	Customized design 11 x 11 pixel	
Disabled resolution	Customized design 15 x 19 pixel	
Viewing distance	> 50 m	
Symbols configuration	Cross and arrow symbols	Green arrow and red cross
	Disabled	Blue colour
Brightness control	Automatic or manual	

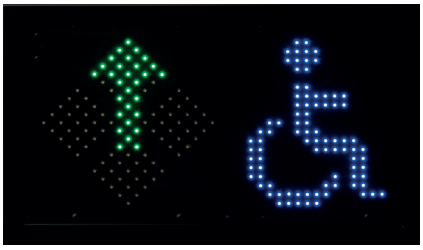


Fig. 1 *SBPDISALH*

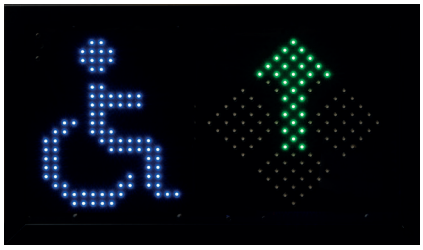


Fig. 2 *SBPDISARH*

Environmental

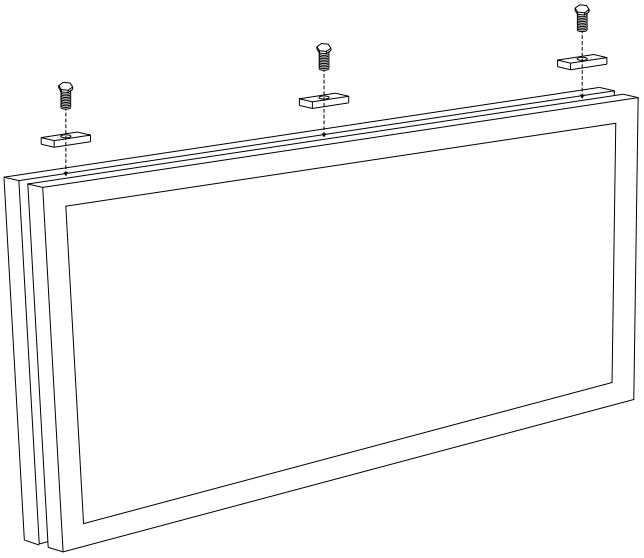
Operating temperature	-20 ... 50°C (-4 ... 122°F) (-40 ... 50°C (-40 ... 122°F) heated version)
Degree of protection	IP54
Humidity	5 ... 90% relative humidity

Mode of operation

The SBPDISAxHx is a display used for showing the direction of available Carpark spaces for disabled people in a parking zone.
The display is programmable by using the SBP2WEB24 configuration software.
The display must be connected to the display interface adapter SBP2DI48524, which converts Dupline® to Modbus RTU.
By using the carpark software, the installer can decide to let the display show “running “or “steady” arrow.
Directions up, down, right or left can also be selected.
The blue sign for disabled is fixed and cannot be changed or removed.
See below the table of programming options.
The display has a 4-wire cable used for connection to the 24 VDC power supply and an RS485 connection, which sends the value to the display.
The display needs to be configured prior to installation.
Programming the display is explained further in the software manual.
The SBP2WEB24 software manual is available

Mounting

The display's aluminium frame has a slit with three 6-mm nuts for mounting.
Using the hammer nuts, the installer can mount the display on the ceiling or the wall.



The display must be mounted by using the included hammer nuts.
Put the hammer nuts in the slit and twist to secure.
Use for instance a threaded rod or screw with 6 mm to secure the display to the wall or ceiling.
Note: Do not open the display in any circumstances, The display and sealing may be damaged. Also, the waranty will be lost.

Options

If the display is mounted in environments with temperatures lower than -20 C degree, we recommend to use the display variant SBDISAxHT.
The “T” indicates a built-in heating element that ensures an operational temperature if the temperature drops below -20°C.

Programming

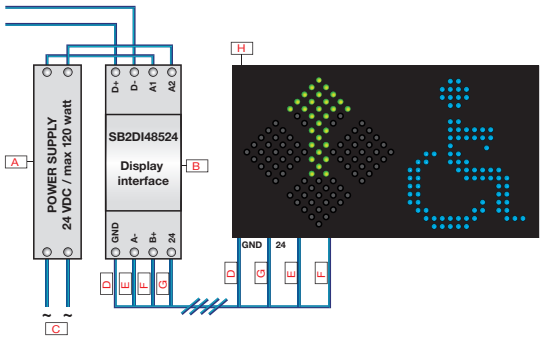
Menu for display programming (Up to 4 digits):
The menu below describes the options when programming the display

1. Arrow selection		
Show arrow when full		
1	Yes	
2	No	Default
Arrow running		
1	Yes	Default
2	No	
Arrow direction		
1	Up	Default
2	Down	
3	Left	
4	Right	
Show Red cross when carpark is full		
1	Yes	Default
2	No	
2. Digit selection		
Show digit when Carpark is full		
1	Yes (show 0)	
2	No (show nothing)	Default
3. Brightness control		
Brightness		
1	30%	
2	50%	
3	75%	
4	Automatic	Default
4. Test		
Display test		
1	Carpark full	
2	Carpark empty	
3	OFF (All LEDs OFF)	Default
4	ON (All LEDs ON)	

Connection Diagrams

Wiring

Wiring example for Dupline® Module SBP2DI48524



Element	Component	Element	Component
A	Power supply 24 VDC/Max. 120 W	**E**	Green
B	Display interface SBP2DI48524	**F**	Yellow
C	95 ... 260 VAC	**G**	Brown
D	White	**H**	Display

Cable

4 x 0,2 mm	
Brown	24 VDC
White	0 VDC (GND)
Yellow	+ RS485
Green	- RS485

Housing

Casing	Aluminium
Front material	Transparent acrylic
Colour	Black
Dimensions (HxWxD)	215 x 358 x 45 mm
Weight	1.6 Kg

Compatibility and conformity

Approvals

CE-marking	CE

References

Product selection key

SBPDIS ☐ H ☐

Enter the code entering the corresponding option instead of NO IMG

Code	Option	Description
SB	-	Smart Building
P	-	Parking
DIS	-	Display
☐	AL	Arrow left
	AR	Arrow right
H	-	Disabled
☐	T	Heating

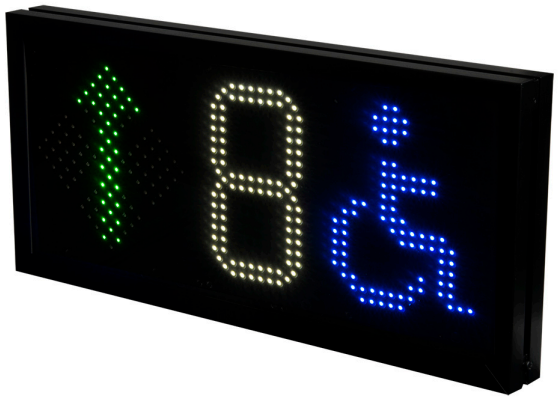
Accessories

- 6 mm hammer nuts for mounting the display. 3 items with ordering number: F00S208HM6

Note: 6 mm bolt and brackets are not included.

SBPDIS1AxHx

Dupline® Carpark Display



Benefits

- Robust and aesthetic looking display made of aluminium
- Brightly lit green-arrow or red-cross LEDs
- One bright white digit and a blue sign for disabled
- Visible from 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

Description

The SBPDIS1AxHx display is a part of the Dupline® carpark system.
It is used for guiding in car park facilities.
Connected to the display interface SBP2DI48524.
The display shows the direction by means of a green arrow or a red cross.
Additionally, the display has one white digit and a sign for disabled people.
The sign for disabled is steady blue.
The programmable display uses high-bright LEDs, which are visible at a distance of more than 50 m - also in bright sunlight.
This display is compatible with Carpark systems based on the SBP2WEB24 controller.
The display is built for both indoor and outdoor environments.

Applications

Display for parking guidance systems.

Main functions

- Shows the direction and the number of available spaces for disabled people in a parking zone.

General specifications

Power Supply

Power supply	≥ 24 VDC
Consumption	19 W (55 W heated version)

Communication

Interface	RS485
Protocol	Modbus RTU
Baud-rate	38400

Display

Technology	LED SMD	
Digit resolution	7 segment 10 x 18 pixel	
Arrow resolution	Customized design 11 x 11 pixel	
Disabled resolution	Customized design 15 x 19 pixel	
Viewing distance	> 50 m	
Symbols configuration	Digits	White colour
	Cross and arrow symbols	Green arrow and red cross
	Disabled	Blue colour
Brightness control	Automatic or manual	

Fig. 1 *SBPDIS1ALH*

Fig. 2 *SBPDIS1ARH*

Environmental

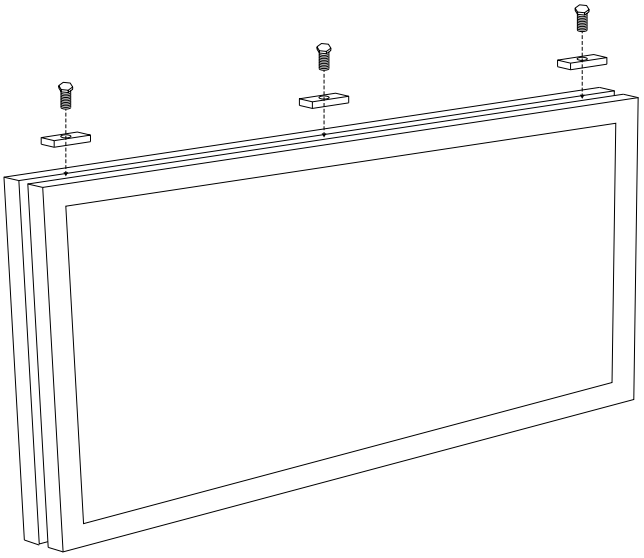
Operating temperature	-20 ... 50°C (-4 ... 122°F) (-40 ... 50°C (-40 ... 122°F) heated version)
Degree of protection	IP54
Humidity	5 ... 90% relative humidity

Mode of operation

The SBPDIS1AxHx is a display used for showing direction and available spaces for disabled people in a parking zone.
The display is programmable by using the SBP2WEB24 configuration software.
By using the carpark software, the installer can decide to let the display show “running “or “steady” arrow.
The display must be connected to the display interface adapter SBP2DI48524, which converts Dupline® to Modbus RTU.
Directions up, down, right or left can also be selected.
The blue sign for disabled is fixed and cannot be changed or removed.
The single digit can be programmed to show “0”, when no spaces are available, or its place can be left empty.
The display has a 4-wire cable used for connection to the 24 VDC power supply and an RS485 connection, which sends the value to the display.
The display needs to be configured prior to installation.
Programming the display is explained further in the software manual.
The SBP2WEB24 software manual is available

Mounting

The display's aluminium frame has a slit with three 6-mm nuts for mounting.
Using the hammer nuts, the installer can mount the display on the ceiling or the wall.



The display must be mounted by using the included hammer nuts.
Put the hammer nuts in the slit and twist to secure.
Use for instance a threaded rod or screw with 6 mm to secure the display to the wall or ceiling.
Note: Do not open the display in any circumstances, The display and sealing may be damaged. Also, the waranty will be lost.

Options

If the display is mounted in environments with temperatures lower than -20°C, we recommend to use the display variant SBDIS1AxHT.
The “T” indicates a built-in heating element that ensures an operational temperature if the temperature drops below -20°C.

Programming

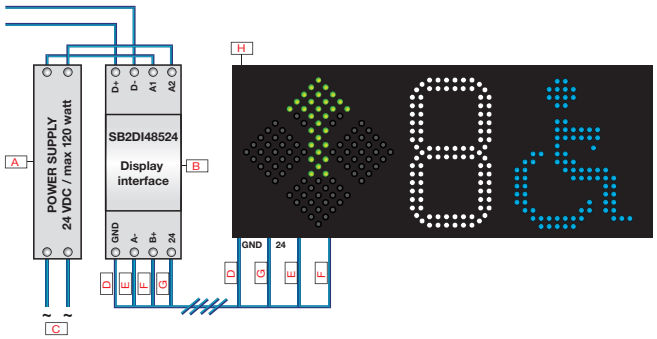
Menu for display programming (Up to 4 digits):
The menu below describes the options when programming the display

1. Arrow selection		
Show arrow when full		
1	Yes	
2	No	Default
Arrow running		
1	Yes	Default
2	No	
Arrow direction		
1	Up	Default
2	Down	
3	Left	
4	Right	
Show Red cross when carpark is full		
1	Yes	Default
2	No	
2. Digit selection		
Show digit when Carpark is full		
1	Yes (show 0)	
2	No (show nothing)	Default
3. Brightness control		
Brightness		
1	30%	
2	50%	
3	75%	
4	Automatic	Default
4. Test		
Display test		
1	Carpark full	
2	Carpark empty	
3	OFF (All LEDs OFF)	Default
4	ON (All LEDs ON)	

Connection Diagrams

Wiring

Wiring example for Dupline® Module SBP2DI48524



Element	Component	Element	Component
A	Power supply 24 VDC/Max. 120 W	E	Green
B	Display interface SBP2DI48524	F	Yellow
C	95 ... 260 VAC	G	Brown
D	White	H	Display

Cable

4 x 0,2 mm	
Brown	24 VDC
White	0 VDC (GND)
Yellow	+ RS485
Green	- RS485

Housing

Casing	Aluminium
Front material	Transparent acrylic
Colour	Black
Dimensions (HxWxD)	215 x 464 x 45 mm
Weight	2.0 Kg

Compatibility and conformity

Approvals

CE-marking	CE

References

Product selection key

SBPDIS1 ☐ H ☐

Enter the code entering the corresponding option instead of ☐

Code	Option	Description
SB	-	Smart Building
P	-	Parking
DIS	-	Display
1	-	Number of digits
☐	AL	Arrow left
	AR	Arrow right
H	-	Disabled
☐	T	Heating

Accessories

- 6 mm hammer nuts for mounting the display. 3 items with ordering number: F00S208HM6

Note: 6 mm bolt and brackets are not included.

SBPDIS2x

Dupline® Carpark Display

Benefits

- Robust and aesthetic looking display made of aluminium
- Two brightly lit white digits
- Visible from 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

Description

The SBPDIS2x display is a part of the Dupline® carpark system.
It is used for guiding in car park facilities.
Connected to the display interface SBP2DI48524.
The display shows the number of available spaces by means of two white digits.
The programmable display uses high-bright LEDs, which are visible at a distance of more than 50 m - also in bright sunlight.
This display is compatible with Carpark systems based on the SBP2WEB24 controller.
The display is built for both indoor and outdoor environments.

Applications

Display for parking guidance systems.

Main functions

- Shows the number of available spaces in a parking zone

General specifications

Power Supply

Power supply	≥ 24 VDC
Consumption	14 W (50 W heated version)

Communication

Interface	RS485
Protocol	Modbus RTU
Baud-rate	38400

Display

Technology	LED SMD	
Digit resolution	7 segment 10 x 18 pixel	
Viewing distance	> 50 m	
Symbols configuration	Digits	White colour
Brightness control	Automatic or manual	

Fig. 1 *SBPDIS2x*

Environmental

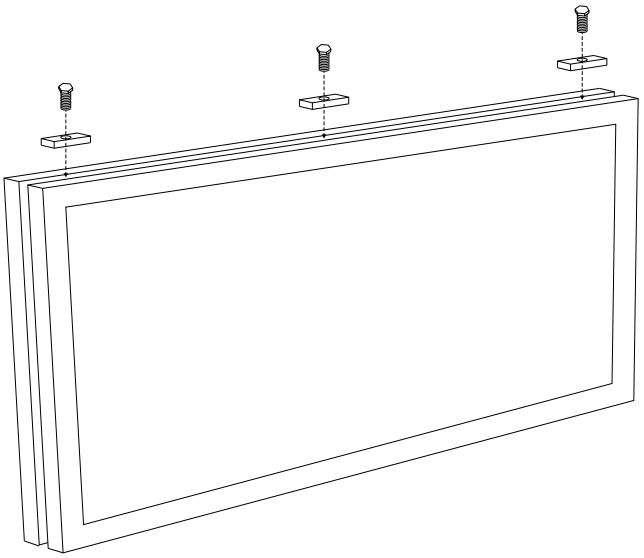
Operating temperature	-20 ... 50°C (-4 ... 122°F) (-40 ... 50°C (-40 ... 122°F) heated version)
Degree of protection	IP54
Humidity	5 ... 90% relative humidity

Mode of operation

The SBPDIS2x is a display used for showing available spaces in a parking zone.
The display is programmable by using the SBP2WEB24 configuration software.
The display must be connected to the display interface adapter SBP2DI48524, which converts Dupline® to Modbus RTU.
By using the carpark software, the installer can decide to let the display show “0”, when no spaces are available, or to leave it empty.
See below the table of programming options.
The display has a 4-wire cable used for connection to the 24 VDC power supply and an RS485 connection, which sends the value to the display.
The display needs to be configured prior to installation.
Programming the display is explained further in the software manual.
The SBP2WEB24 software manual is available

Mounting

The display's aluminium frame has a slit with three 6-mm nuts for mounting.
Using the hammer nuts, the installer can mount the display on the ceiling or the wall.



The display must be mounted by using the included hammer nuts.
Put the hammer nuts in the slit and twist to secure.
Use for instance a threaded rod or screw with 6 mm to secure the display to the wall or ceiling.
Note: Do not open the display in any circumstances, The display and sealing may be damaged. Also, the waranty will be lost.

Options

If the display is mounted in environments with temperatures lower than -20°C, we recommend to use the display variant SBDIS2T.
The “T” indicates a built-in heating element that ensures an operational temperature if the temperature drops below -20°C.

Programming

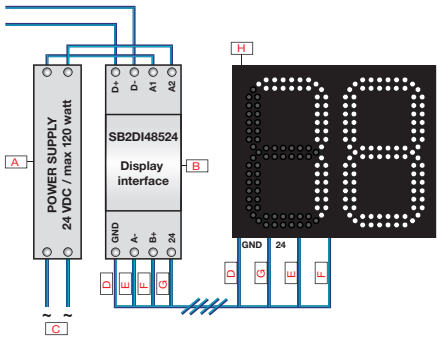
Menu for display programming (Up to 4 digits):
The menu below describes the options when programming the display

1. Arrow selection		
Show arrow when full		
1	Yes	
2	No	Default
Arrow running		
1	Yes	Default
2	No	
Arrow direction		
1	Up	Default
2	Down	
3	Left	
4	Right	
Show Red cross when carpark is full		
1	Yes	Default
2	No	
2. Digit selection		
Show digit when Carpark is full		
1	Yes (show 0)	
2	No (show nothing)	Default
3. Brightness control		
Brightness		
1	30%	
2	50%	
3	75%	
4	Automatic	Default
4. Test		
Display test		
1	Carpark full	
2	Carpark empty	
3	OFF (All LEDs OFF)	Default
4	ON (All LEDs ON)	

Connection Diagrams

Wiring

Wiring example for Dupline® Module SBP2DI48524



Element	Component	Element	Component
A	Power supply 24 VDC/Max. 120 W	**E**	Green
B	Display interface SBP2DI48524	**F**	Yellow
C	95 ... 260 VAC	**G**	Brown
D	White	**H**	Display

Cable

4 x 0,2 mm	
Brown	24 VDC
White	0 VDC (GND)
Yellow	+ RS485
Green	- RS485

Housing

Casing	Aluminium
Front material	Transparent acrylic
Colour	Black
Dimensions (HxWxD)	215 x 253 x 45 mm
Weight	1.1 Kg

Compatibility and conformity

Approvals

CE-marking	CE

References

Product selection key

SBPDIS2 □

Enter the code entering the corresponding option instead of □

Code	Option	Description
SB	-	Smart Building
P	-	Parking
DIS	-	Display
2	-	Number of digits
□	T	Heating

Accessories

- 6 mm hammer nuts for mounting the display. 3 items with ordering number: F00S208HM6

Note: 6 mm bolt and brackets are not included.

SBPDIS3x

Dupline® Carpark Display

Benefits

- Robust and aesthetic looking display made of aluminium
- Three bright white LED digits
- Visible from 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

Description

The SBPDIS3x display is a part of the Dupline® carpark system.
It is used for guiding in car park facilities.
Connected to the display interface SBP2DI48524.
The display shows the number of available spaces by means of three white digits.
The programmable display uses high-bright LEDs, which are visible at a distance of more than 50 m - also in bright sunlight.
This display is compatible with Carpark systems based on the SBP2WEB24 controller.
The display is built for both indoor and outdoor environments.

Applications

Display for parking guidance systems.

Main functions

- Shows the number of available spaces in a parking zone

General specifications

Power Supply

Power supply	≥ 24 VDC
Consumption	21 W (57 W heated version)

Communication

Interface	RS485
Protocol	Modbus RTU
Baud-rate	38400

Display

Technology	LED SMD	
Digit resolution	7 segment 10 x 18 pixel	
Viewing distance	> 50 m	
Symbols configuration	Digits	White colour
Brightness control	Automatic or manual	

Fig. 1 *SBPDIS3*

Environmental

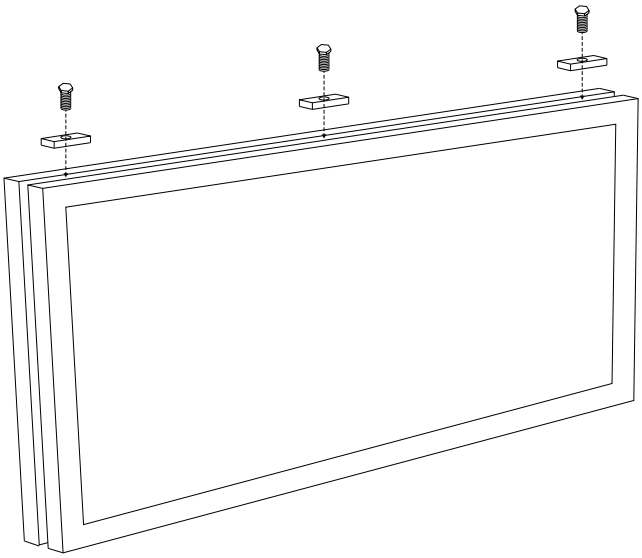
Operating temperature	-20 ... 50°C (-4 ... 122°F) (-40 ... 50°C (-40 ... 122°F) heated version)
Degree of protection	IP54
Humidity	5 ... 90% relative humidity

Mode of operation

The SBPDIS3x is a display used for showing available spaces in a parking zone.
The display is programmable by using the SBP2WEB24 configuration software.
The display must be connected to the display interface adapter SBP2DI48524, which converts Dupline® to Modbus RTU.
By using the carpark software, the installer can decide to let the display show “0”, when no spaces are available, or to leave it empty.
See below the table of programming options.
The display has a 4-wire cable used for connection to the 24 VDC power supply and an RS485 connection, which sends the value to the display.
The display needs to be configured prior to installation.
Programming the display is explained further in the software manual.
The SBP2WEB24 software manual is available

Mounting

The display's aluminium frame has a slit with three 6-mm nuts for mounting.
Using the hammer nuts, the installer can mount the display on the ceiling or the wall.



The display must be mounted by using the included hammer nuts.
Put the hammer nuts in the slit and twist to secure.
Use for instance a threaded rod or screw with 6 mm to secure the display to the wall or ceiling.
Note: Do not open the display in any circumstances, The display and sealing may be damaged. Also, the waranty will be lost.

Options

If the display is mounted in environments with lower temperatures than -20 C degree, we recommend to use the display variant SBDIS3T.
The “T” indicates a built-in heating element that ensures an operational temperature if the temperature drops below -20°C.

Programming

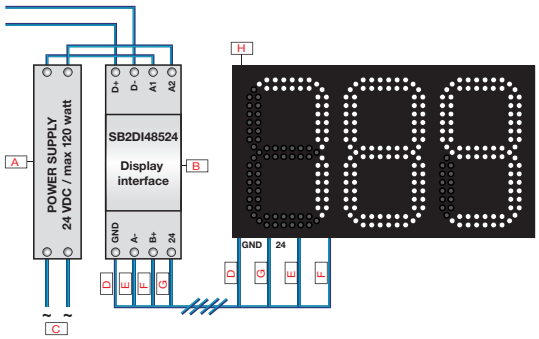
Menu for display programming (Up to 4 digits):
The menu below describes the options when programming the display

1. Arrow selection		
Show arrow when full		
1	Yes	
2	No	Default
Arrow running		
1	Yes	Default
2	No	
Arrow direction		
1	Up	Default
2	Down	
3	Left	
4	Right	
Show Red cross when carpark is full		
1	Yes	Default
2	No	
2. Digit selection		
Show digit when Carpark is full		
1	Yes (show 0)	
2	No (show nothing)	Default
3. Brightness control		
Brightness		
1	30%	
2	50%	
3	75%	
4	Automatic	Default
4. Test		
Display test		
1	Carpark full	
2	Carpark empty	
3	OFF (All LEDs OFF)	Default
4	ON (All LEDs ON)	

Connection Diagrams

Wiring

Wiring example for Dupline® Module SBP2DI48524



Element	Component	Element	Component
A	Power supply 24 VDC/Max. 120 W	**E**	Green
B	Display interface SBP2DI48524	**F**	Yellow
C	95 ... 260 VAC	**G**	Brown
D	White	**H**	Display

Cable

4 x 0,2 mm	
Brown	24 VDC
White	0 VDC (GND)
Yellow	+ RS485
Green	- RS485

Housing

Casing	Aluminium
Front material	Transparent acrylic
Colour	Black
Dimensions (HxWxD)	215 x 360 x 45 mm
Weight	1.5 Kg

Compatibility and conformity

Approvals

CE-marking	CE

References

Product selection key

SBPDIS3 □

Enter the code entering the corresponding option instead of □

Code	Option	Description
SB	**-**	Smart Building
P	**-**	Parking
DIS	**-**	Display
3	**-**	Number of digits
□	**T**	Heating

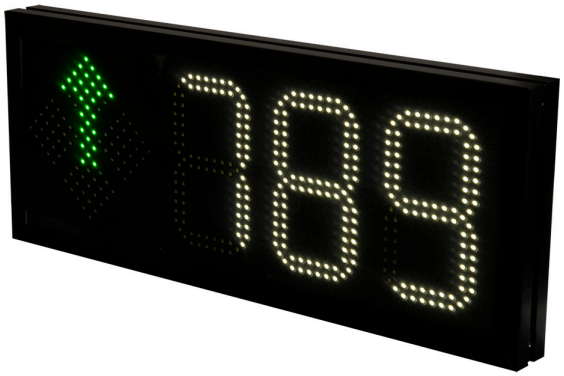
Accessories

- 6 mm hammer nuts for mounting the display. 3 items with ordering number: F00S208HM6

Note: 6 mm bolt and brackets are not included.

SBPDIS3Axx

Dupline® Carpark Display



Benefits

- Robust and aesthetic looking display made of aluminium
- Brightly lit green-arrow or red-cross LEDs
- Three bright white LED digits
- Visible from 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

Description

The SBPDIS3Axx display is a part of the Dupline® carpark system.
It is used for guiding in car park facilities.
Connected to the display interface SBP2DI48524.
The display shows the number of available spaces by means of three white digits and the direction by means of a green arrow or a red cross.
The programmable display uses high-bright LEDs, which are visible at a distance of more than 50 m - also in bright sunlight.
This display is compatible with Carpark systems based on the SBP2WEB24 controller.
The display is built for both indoor and outdoor environments.

Applications

Display for parking guidance systems.

Main functions

- Shows the direction and the number of available spaces in a parking zone

General specifications

Power Supply

Power supply	≥ 24 VDC
Consumption	25 W (61 W heated version)

Communication

Interface	RS485
Protocol	Modbus RTU
Baud-rate	38400

Display

Technology	LED SMD	
Digit resolution	7 segment 10 x 18 pixel	
Arrow resolution	Customized design 11 x 11 pixel	
Viewing distance	> 50 m	
Symbols configuration	Digits	White colour
	Cross and arrow symbols	Green arrow and red cross
Brightness control	Automatic or manual	

Fig. 1 *SBPDIS3AL with arrow*

Fig. 2 *SBPDIS3AL with cross*

Fig. 3 *SBPDIS3AR with arrow*

Environmental

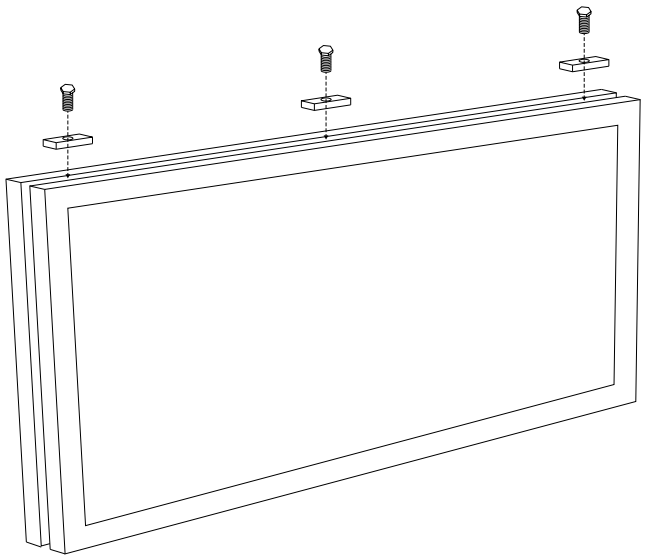
Operating temperature	-20 ... 50°C (-4 ... 122°F) (-40 ... 50°C (-40 ... 122°F) heated version)
Degree of protection	IP54
Humidity	5 ... 90% relative humidity

Mode of operation

The SBPDIS3Axx is a display used in a parking zone to show the direction by means of a green arrow or a red cross, and the number of available spaces by means of three white digits.
The display is programmable by using the SBP2WEB24 configuration software.
The display must be connected to the display interface adapter SBP2DI48524, which converts Dupline® to Modbus RTU.
By using the carpark software, the installer can decide to let the display show “running “or “steady” arrow.
Directions up, down, right or left can also be selected.
The three white digits can show either “0” when no spaces are available, or their places can be left empty.
See below the table of programming options.
The display has a 4-wire cable used for connection to the 24 VDC power supply and an RS485 connection, which sends the value to the display.
The display needs to be configured prior to installation.
Programming the display is explained further in the software manual.
The SBP2WEB24 software manual is available

Mounting

The display's aluminium frame has a slit with three 6-mm nuts for mounting.
Using the hammer nuts, the installer can mount the display on the ceiling or the wall.



The display must be mounted by using the included hammer nuts.
Put the hammer nuts in the slit and twist to secure.
Use for instance a threaded rod or screw with 6 mm to secure the display to the wall or ceiling.
Note: Do not open the display in any circumstances, The display and sealing may be damaged. Also, the waranty will be lost.

Options

If the display is mounted in environments with temperatures lower than -20 C degree, we recommend to use the display variant SBDIS3AxT.
The “T” indicates a built-in heating element that ensures an operational temperature if the temperature drops below -20°C.

Programming

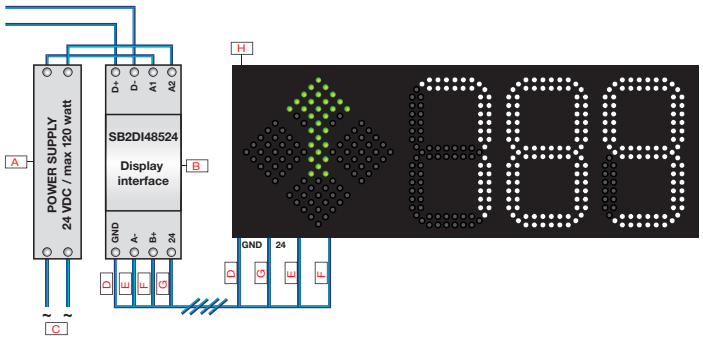
Menu for display programming (Up to 4 digits):
The menu below describes the options when programming the display

1. Arrow selection		
Show arrow when full		
1	Yes	
2	No	Default
Arrow running		
1	Yes	Default
2	No	
Arrow direction		
1	Up	Default
2	Down	
3	Left	
4	Right	
Show Red cross when carpark is full		
1	Yes	Default
2	No	
2. Digit selection		
Show digit when Carpark is full		
1	Yes (show 0)	
2	No (show nothing)	Default
3. Brightness control		
Brightness		
1	30%	
2	50%	
3	75%	
4	Automatic	Default
4. Test		
Display test		
1	Carpark full	
2	Carpark empty	
3	OFF (All LEDs OFF)	Default
4	ON (All LEDs ON)	

Connection Diagrams

Wiring

Wiring example for Dupline® Module SBP2DI48524



Element	Component	Element	Component
A	Power supply 24 VDC/Max. 120 W	**E**	Green
B	Display interface SBP2DI48524	**F**	Yellow
C	95 ... 260 VAC	**G**	Brown
D	White	**H**	Display

Cable

4 x 0,2 mm	
Brown	24 VDC
White	0 VDC (GND)
Yellow	+ RS485
Green	- RS485

Housing

Casing	Aluminium
Front material	Transparent acrylic
Colour	Black
Dimensions (HxWxD)	215 x 535 x 45 mm
Weight	2.3 Kg

Compatibility and conformity

Approvals

CE-marking	CE

References

Product selection key

SBPDIS3 □□

Enter the code entering the corresponding option instead of □

Code	Option	Description
SB	**-**	Smart Building
P	**-**	Parking
DIS	**-**	Display
3	**-**	Number of digits
□	**AL**	Arrow left
	AR	Arrow right
□	**T**	Heating

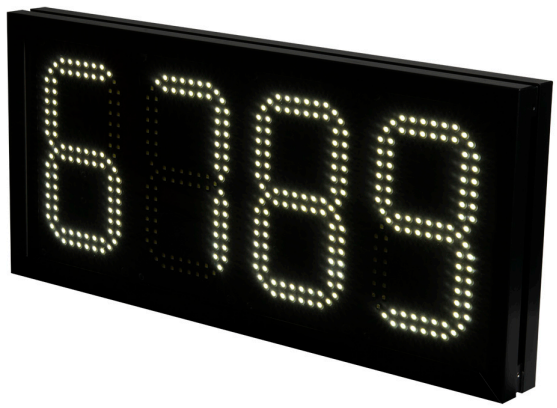
Accessories

- 6 mm hammer nuts for mounting the display. 3 items with ordering number: F00S208HM6

Note: 6 mm bolt and brackets are not included.

SBPDIS4x

Dupline® Carpark Display



Benefits

- Robust and aesthetic looking display made of aluminium
- Four bright white digits
- Visible from 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

Description

The SBPDIS4x display is a part of the Dupline® carpark system.
It is used for guiding in car park facilities.
Connected to the display interface SBP2DI48524.
The display shows the number of available spaces by means of four white digits.
The programmable display uses high-bright LEDs, which are visible at a distance of more than 50 m - also in bright sunlight.
This display is compatible with Carpark systems based on the SBP2WEB24 controller.
The display is built for both indoor and outdoor environments.

Applications

Display for parking guidance systems.

Main functions

- Shows the number of available spaces in a parking zone

General specifications

Power Supply

Power supply	≥ 24 VDC
Consumption	27 W (63 W heated version)

Communication

Interface	RS485
Protocol	Modbus RTU
Baud-rate	38400

Display

Technology	LED SMD	
Digit resolution	7 segment 10 x 18 pixel	
Viewing distance	> 50 m	
Symbols configuration	Digits	White colour
Brightness control	Automatic or manual	

Fig. 1 *SBPDIS4*

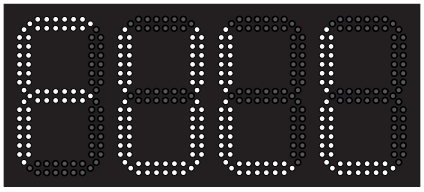


Fig. 2 *SBPDIS4_FULL*

Environmental

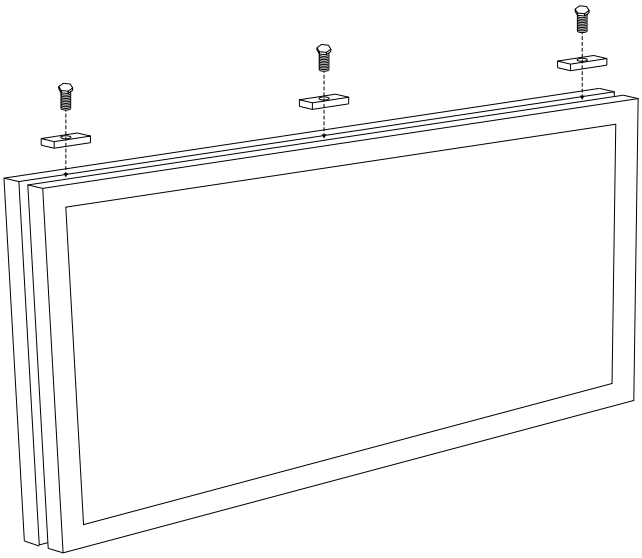
Operating temperature	-20 ... 50°C (-4 ... 122°F) (-40 ... 50°C (-40 ... 122°F) heated version)
Degree of protection	IP54
Humidity	5 ... 90% relative humidity

Mode of operation

The SBPDIS4x is a display used for showing available spaces in a parking zone.
The display is programmable by using the SBP2WEB24 configuration software.
The display must be connected to the display interface adapter SBP2DI48524, which converts Dupline® to Modbus RTU.
By using the carpark software, the installer can decide to let the display show “0”, when no spaces are available, or to show “FULL”.
See below the table of programming options.
The display has a 4-wire cable used for connection to the 24 VDC power supply and an RS485 connection, which sends the value to the display.
The display needs to be configured prior to installation.
Programming the display is explained further in the software manual.
The SBP2WEB24 software manual is available

Mounting

The display's aluminium frame has a slit with three 6-mm nuts for mounting.
Using the hammer nuts, the installer can mount the display on the ceiling or the wall.



The display must be mounted by using the included hammer nuts.
Put the hammer nuts in the slit and twist to secure.
Use for instance a threaded rod or screw with 6 mm to secure the display to the wall or ceiling.
Note: Do not open the display in any circumstances, The display and sealing may be damaged. Also, the waranty will be lost.

Options

If the display is mounted in environments with temperatures lower than -20°C, we recommend to use the display variant SBDIS4T.
The “T” indicates a built-in heating element that ensures an operational temperature if the temperature drops below -20°C.

Programming

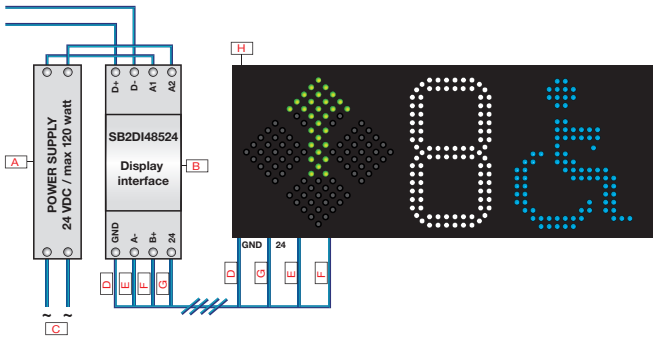
Menu for display programming (Up to 4 digits):
The menu below describes the options when programming the display

1. Arrow selection		
Show arrow when full		
1	Yes	
2	No	Default
Arrow running		
1	Yes	Default
2	No	
Arrow direction		
1	Up	Default
2	Down	
3	Left	
4	Right	
Show Red cross when carpark is full		
1	Yes	Default
2	No	
2. Digit selection		
Show digit when Carpark is full		
1	Yes (show 0)	
2	No (show "FULL")	Default
3. Brightness control		
Brightness		
1	30%	
2	50%	
3	75%	
4	Automatic	Default
4. Test		
Display test		
1	Carpark full	
2	Carpark empty	
3	OFF (All LEDs OFF)	Default
4	ON (All LEDs ON)	

Connection Diagrams

Wiring

Wiring example for Dupline® Module SBP2DI48524



Element	Component	Element	Component
A	Power supply 24 VDC/Max. 120 W	E	Green
B	Display interface SBP2DI48524	F	Yellow
C	95 ... 260 VAC	G	Brown
D	White	H	Display

Cable

4 x 0,2 mm	
Brown	24 VDC
White	0 VDC (GND)
Yellow	+ RS485
Green	- RS485

Housing

Casing	Aluminium
Front material	Transparent acrylic
Colour	Black
Dimensions (HxWxD)	215 x 467 x 45 mm
Weight	2.0 Kg

Compatibility and conformity

Approvals

CE-marking	CE

References

Product selection key

SBPDIS4 ☐

Enter the code entering the corresponding option instead of ☐

Code	Option	Description
SB	-	Smart Building
P	-	Parking
DIS	-	Display
4	-	Number of digits
☐	T	Heating

Accessories

- 6 mm hammer nuts for mounting the display. 3 items with ordering number: F00S208HM6

Note: 6 mm bolt and brackets are not included.

SBPDIS9x

Dupline® Carpark Display

Description

The SBPDIS9x display is a part of the Dupline® carpark system.
It is used for guiding in car park facilities.
Connected to the display interface SBP2DI48524.
The display is a freely programmable display that allows the installer to decide to use the whole matrix for text, or to use part of it dynamically to show the number of available parking spaces.
The programmable display uses high-bright LEDs, which are visible at a distance of more than 50 m - also in bright sunlight.
This display is compatible with Carpark systems based on the SBP2WEB24 controller.
The display is built for both indoor and outdoor environments.

Benefits

- Robust and aesthetic looking display made of aluminium
- White LED,16 x 96 pixels, full matrix
- Option for text and numbers in combination
- Wide language selection, which can show for instance “OPEN 9999” and “CLOSED”
- Visible from 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

Applications

Display for parking guidance systems.

Main functions

- Shows text and number of available spaces in a parking zone

General specifications

Power Supply

Power supply	≥ 24 VDC (min.)
Consumption (Power)	62 W (122 W heated version)

Communication

Interface	RS485
Protocol	Modbus RTU
Baud-rate	38400

Display

Technology	LED SMD	
Digit resolution	16 x 96 pixels, full matrix	
Viewing distance	min. 50 m	
Symbols configuration	Digits	White colour
Brightness control	Automatic or manual	

Fig. 1 *SBPDIS9x*

Environmental

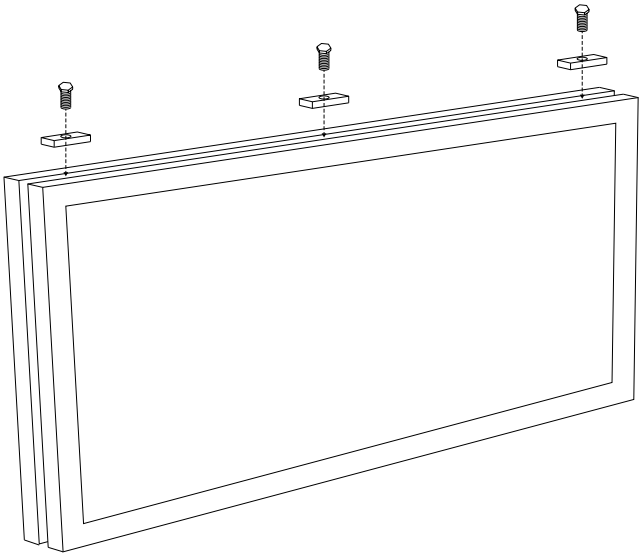
Operating temperature	-20 ... 50°C (-4 ... 122°F) (-40 ... 50°C (-40 ... 122°F) heated version)
Degree of protection	IP54
Humidity	5 ... 90% relative humidity

Mode of operation

The SBPDIS9x is a display used for showing text, for instance “OPEN” or “CLOSED,” or text and numbers in combination, for instance “OPEN-1234” or “CLOSED000”.
The display has a built-in alphabet to enable the installer to design the text required.
Connect the display to the display interface SBP2DI48524 and use the SBP2WEB24 configuration tool to program the display.
See below the table of programming options.
The display has a 4-wire cable used for connection to the 24 VDC power supply and an RS485 connection, which sends the value to the display.
The display needs to be configured prior to installation.
Programming the display is explained further in the software manual.
The SBP2WEB24 software manual is available

Mounting

The display's aluminium frame has a slit with three 6-mm nuts for mounting.
Using the hammer nuts, the installer can mount the display on the ceiling or the wall.



The display must be mounted by using the included hammer nuts.
Put the hammer nuts in the slit and twist to secure.
Use for instance a threaded rod or screw with 6 mm to secure the display to the wall or ceiling.
Note: Do not open the display in any circumstances, The display and sealing may be damaged. Also, the waranty will be lost.

Options

If the display is mounted in environments with temperatures lower than -20°C, we recommend you to use the display variant SBDIS9T.
The “T” indicates a built-in heating element that ensures an operational temperature if the temperature drops below -20°C.

Programming

Menu for display programming (9 digits only)
The menu below describes the options when programming the display

1. Select text for “Carpark empty”		
Text only. Up to 9 characters	(XXXXXXXXX)	
Text and 3 digits	(XXXXXX999)	Default
Text and 4 digits	(XXXXX9999)	
Text and 5 digits	(XXXX99999)	
2. Select text for “Carpark full”		
Text only Up to 9 characters	(XXXXXXXXX)	Default
Text and 3 digits	(XXXXXX999)	
Text and 4 digits	(XXXXX9999)	
Text and 5 digits	(XXXX99999)	
3. Brightness control		
Brightness		
1	30%	
2	50%	
3	75%	
4	Automatic	Default
4. Test		
Display test		
1	Carpark full	
2	Carpark empty	
3	All LEDs ON	
4	All LEDs OFF	
5	OFF	Default
5. Special command		
1	Special command 1	Modbus RTU 40030 - 40038
2	Special command 2	Modbus RTU 40040 - 40048
3	Special command 3	Modbus RTU 40050 - 40058
4	OFF	Default

Connection Diagrams

Wiring

Wiring example for Dupline® Module SBP2DI48524

Element	Component	Element	Component
A	Power supply 24 VDC/Max. 120 W	E	Green
B	Display interface SBP2DI48524	F	Yellow
C	95 ... 260 VAC	G	Brown
D	White	H	Display

Cable

4 x 0,2 mm	
Brown	24 VDC
White	0 VDC (GND)
Yellow	+ RS485
Green	- RS485

Housing

Casing	Aluminium
Front material	Transparent acrylic
Colour	Black
Dimensions (HxWxD)	215 x 950 x 45 mm
Weight	4.3 Kg

Compatibility and conformity

Approvals

CE-marking	CE

References

Product selection key

SBPDIS9 ☐

Enter the code entering the corresponding option instead of ☐

Code	Option	Description
SB	**-**	Smart Building
P	**-**	Parking
DIS	**-**	Display
9	**-**	Number of digits
☐	**T**	Heating

Accessories

- 6 mm hammer nuts for mounting the display. 3 items with ordering number: F00S208HM6

Note: 6 mm bolt and brackets are not included.

SBPBASEA

Carpark base holder

Benefits

- **Plug & Play** installation
- **One base holder** suitable for the SBPSUSxxx sensors and SBPILED indicator
- **On board chip** with the SIN code and detachable connector for Dupline® 3-wire

Description

The SBPBASEA is part of the Dupline® Carpark system.
It is a base holder for the SBPSUSxxx sensors and SBPILED indicator.
The base holder contains the wiring terminals, the chip with the SIN code and a RJ12 connector for the sensor / indicator.
It is designed for cable tray and conduit/ pipe mounting where the wires enter the base holder from the top.

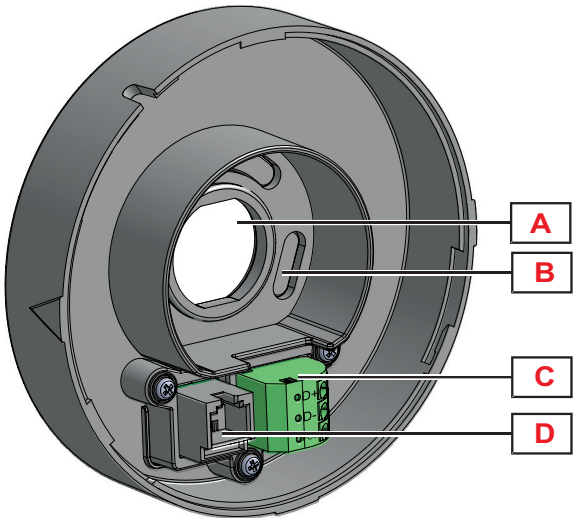
Applications

Parking Guidance Systems

Main functions

- Base holder for Dupline® carpark sensors and indicators.

Structure

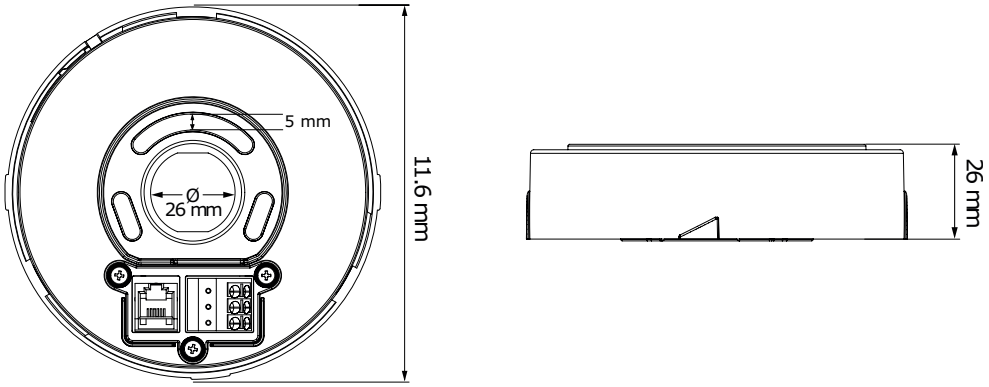


Element	Component	Function
A		The wires enter the base holder from the top
B	Pre-punched screw holes	The base holder can be mounted by means of selftapping screws by using the pre-punched screw holes
C	2 x 3 PIN connector	Wiring terminals (POW, D+, D-) for power supply and communication (Smart Dupline®)
D	RJ12 female connector	It is used to connect the sensor (SBPSUxxx) or indicator (SBPILED) to the base holder

Features

General

Material	ABS
Housing colour	Light grey
Dimensions	26 x 116 mm
Weight	25 g



Environmental

Operating temperature	-40 to 70°C (-40 to 158°F)
Storage temperature	-40 to 80°C (-40 to 176°F)
Humidity	5-98% Relative humidity
Pollution degree	3 (IEC60664)

Compatibility and conformity

CE-marking	CE
Approvals	c UL us

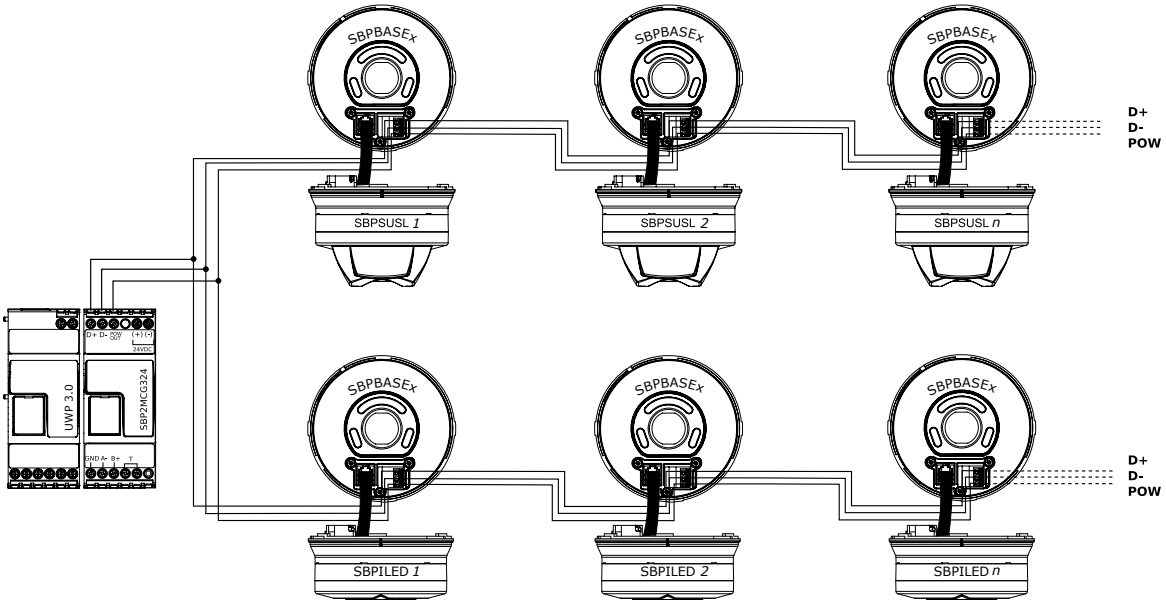
Power Supply

Power supply	By the Dupline® bus via the RJ12 connector

Communication

Protocol	Smart-Dupline®

Connection Diagram



Mode of operation

The following mounting suggestions are the standard ones; for any type of application other than those shown below, please contact our technical assistance before installing the SBPBASEA and the SBPSUSxxx sensors and SBPILED indicator.

Installation of the SBPBASEA together with the SBPSUSL45

The SBPBASEA together with the SBPSUSL45 sensor should be placed at a height between 2.2 to 2.4m. The depth of detection is 1.5 m.

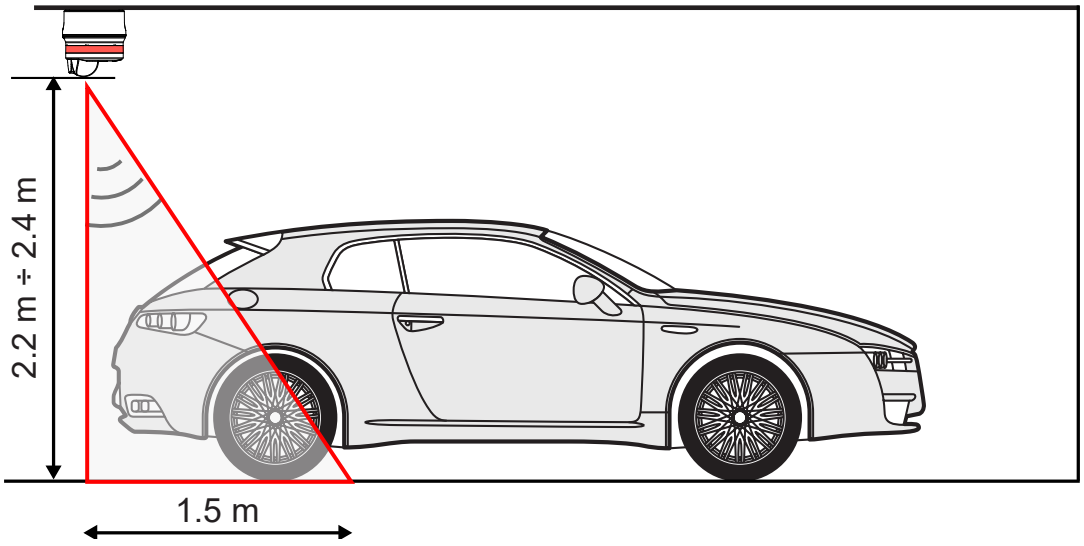
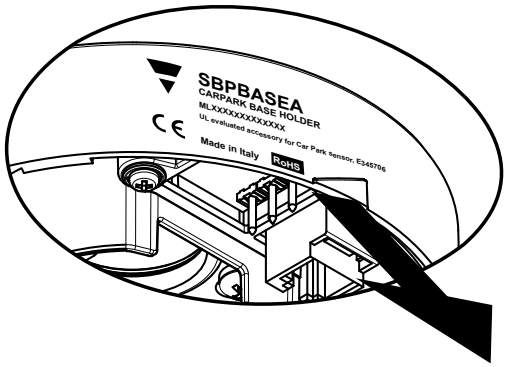


Fig. 1 *Sensor height and distance*

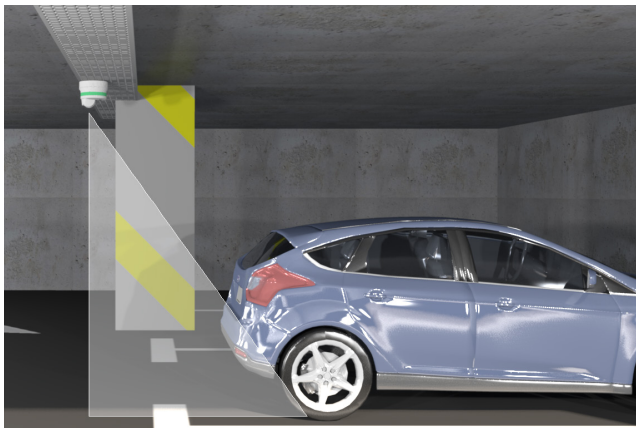
The SIN indication and connectors must face the parking bay (see picture below):



Parking bay

Example 1

In this example the SBPBASEA together with the sensor could have been installed closer to the parking bay.

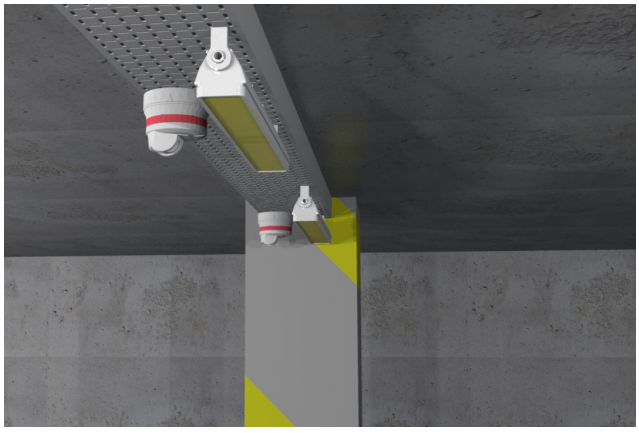


The SBPBASEA is wrongly mounted on the left hand of the cable tray

Put the SBPBASEA on the right hand of the cable tray

Example 2

In this example the LED lamp is too close to the sensor and wrongly mounted in front of the sensor, obstructing the visibility.

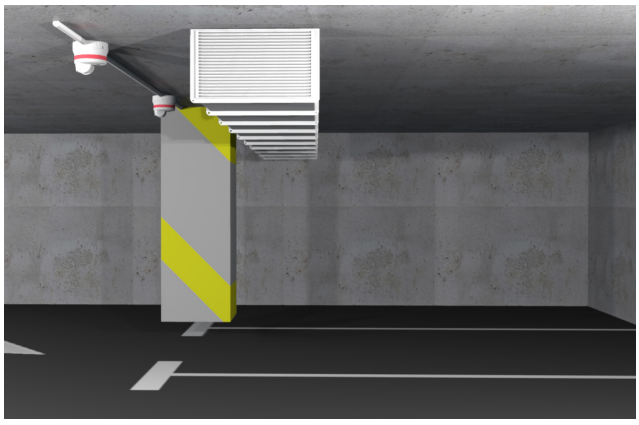


The LED lamp is wrongly mounted in front of the sensor

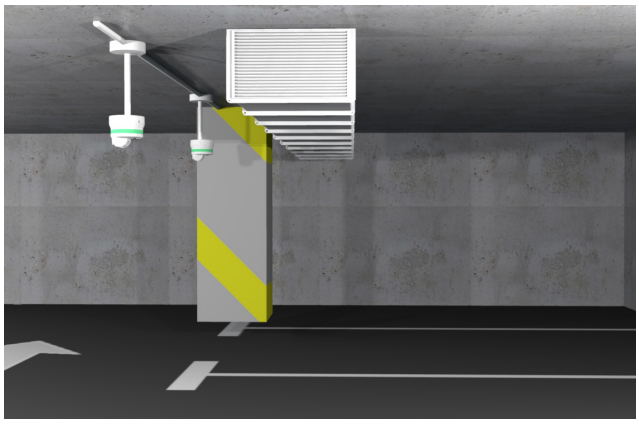
Put the SBPBASEA together with the sensor in front of the LED lamp

Example 3

If the distance between the obstacle and the sensor is less than 2.5 m, the base of the sensor must be installed at least 5 cm below the obstacle.



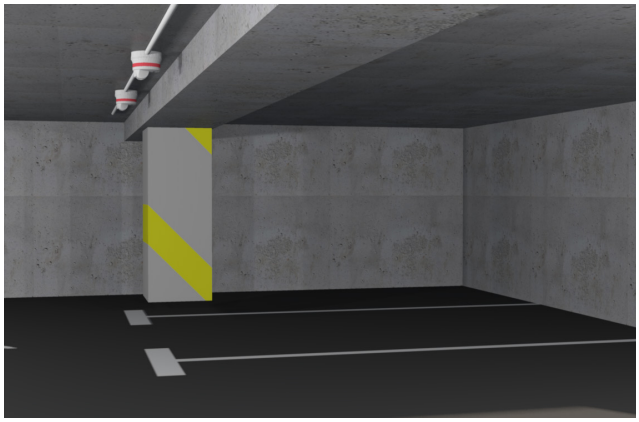
The sensor is obstructed by the obstacle



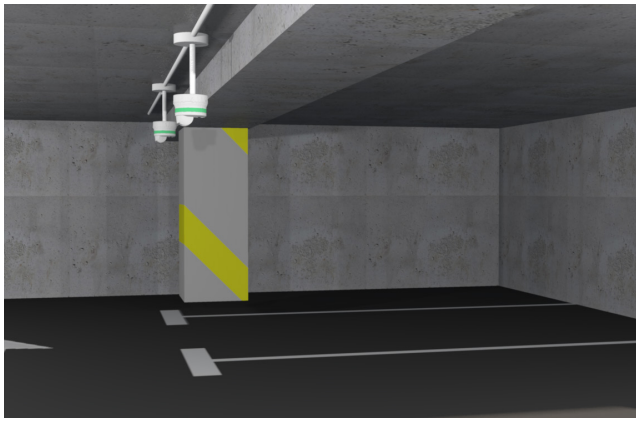
Put the SBPBASEA at least 5 cm below the obstacle

Example 4

In this example the obstacle (beam) is lower than the sensor and it is too close (< 2.5 m).



The sensor is obstructed by the obstacle

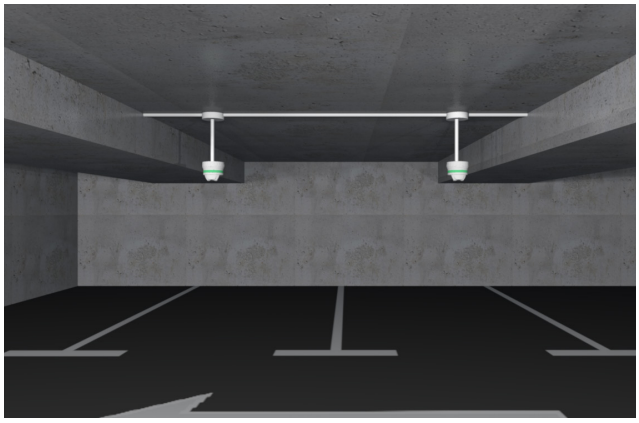


Put the SBPBASEA at least 5 cm below the obstacle

Example 5

In this example the obstacle is on the side part of the sensor and the distance between them is less than 1 m. Moreover, the thickness of the obstacle is more than 30 cm. The SBPBASEA for conduit/pipe mounting has to be installed to mount the sensor at least 5 cm below the obstacles.

The obstacle is too close to the sensors



Put the SBPBASEA at least 5 cm below the obstacles

Installation of the SBPBASEA together with the SBPSUSL

The SBPBASEA together with the SBPSUSL sensor should be placed in the middle of the parking bay at a height between 2.0 to 4.0 m.

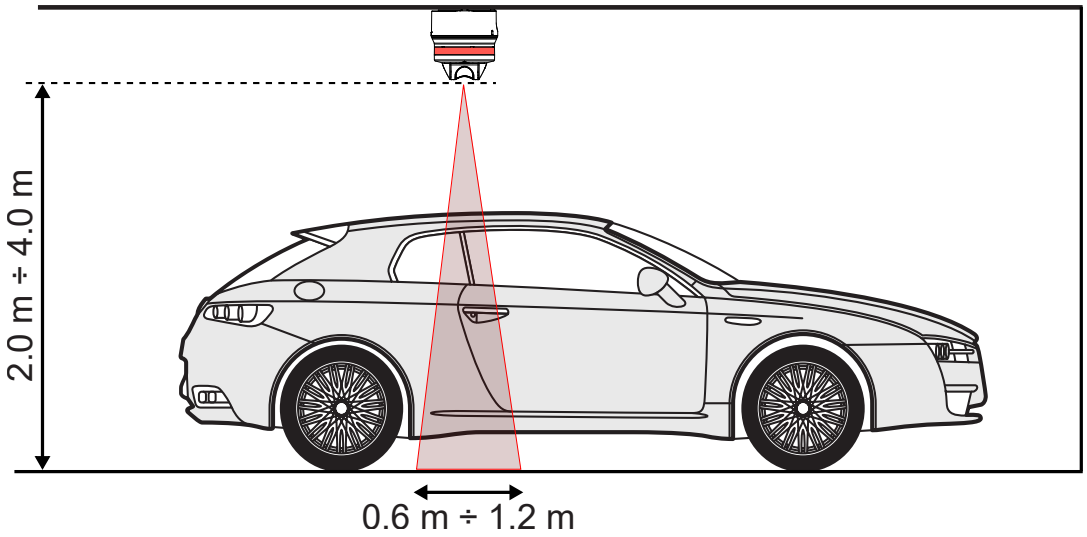
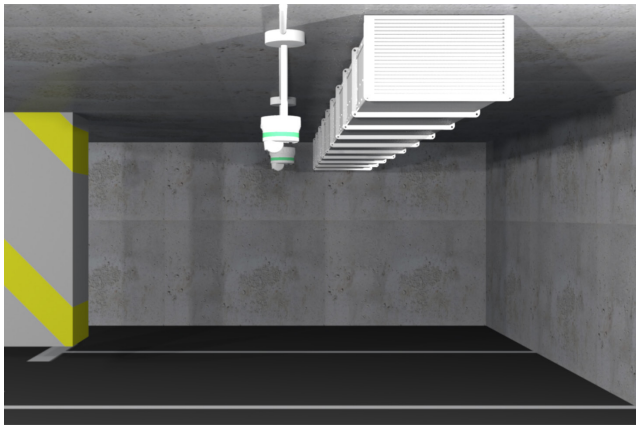


Fig. 2 *Sensor height and distance*

Example 6

If the distance between the obstacle and the sensor is less than 20 cm, the base of the sensor must be installed at least 5 cm below the obstacle.

The sensor is obstructed by the obstacle

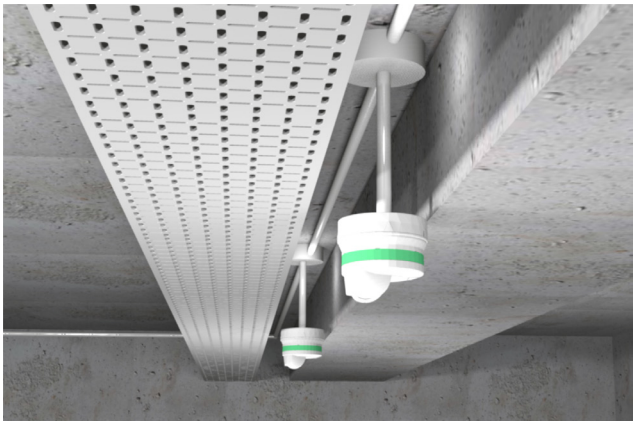


Put the SBPBASEA at least 5 cm below the obstacle

Example 7

In this example the obstacles (beam and conduit) obstruct the sensor and they are too close (< 20 cm).

The sensor is obstructed by the lateral obstacles

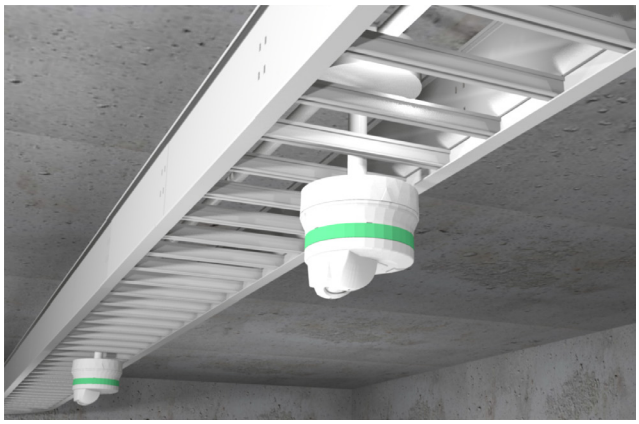


Put the SBPBASEA at least 5 cm below the obstacles

Example 8

If there is an obstacle hiding the sensor (which can not be removed) be sure to place the sensor at least 5 cm below it, by using the SBPBASEA together with a pipe.

The sensor is completly obstructed by the obstacle



The sensor is placed outside the obstacle by using the SBPBASEA and a pipe

Installation of the SBPBASEA together with the SBPSUSCNT

The SBPBASEA together with the SBPSUSCNT sensors should be mounted in the driving lane at a height between 2.0 to 2.5 m.
For each detection point the system permits the usage of one sensor or multiple sensors. In order to avoid crosstalk and false detections two sensors should be used.
In this way, the system is also able to detect the direction of the cars.

Example 9
Please refer to the following table to place the two SBPBASEA bases together with the sensors at the proper distance.

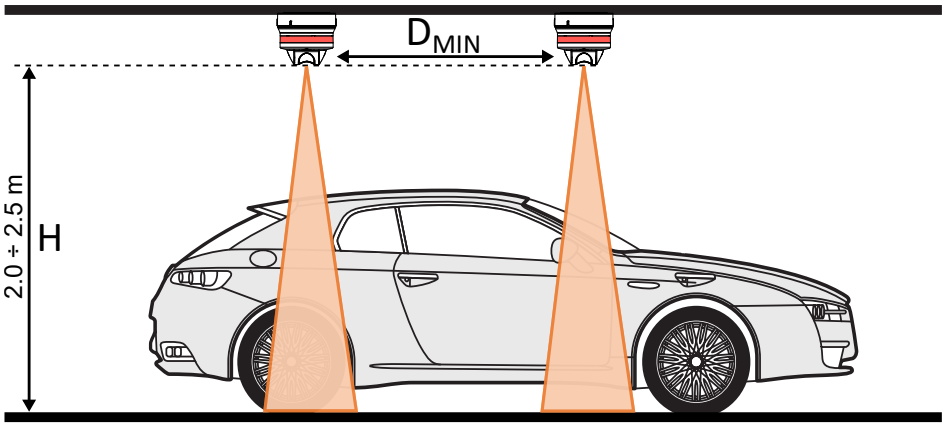


Fig. 3 *Sensor height*

Sensor height (m)	Min. distance (m)
2.5	0.91
2.4	0.88
2.3	0.84
2.2	0.80
2.1	0.77
2.0	0.73

Tab. 1 *Minimum distance between sensors*

Example 10
Should the driving lane be larger than the standard (2.5 to 3.25 m), please refer to table 2 to place the two SBPBASEA bases together with the sensors at the proper distance:

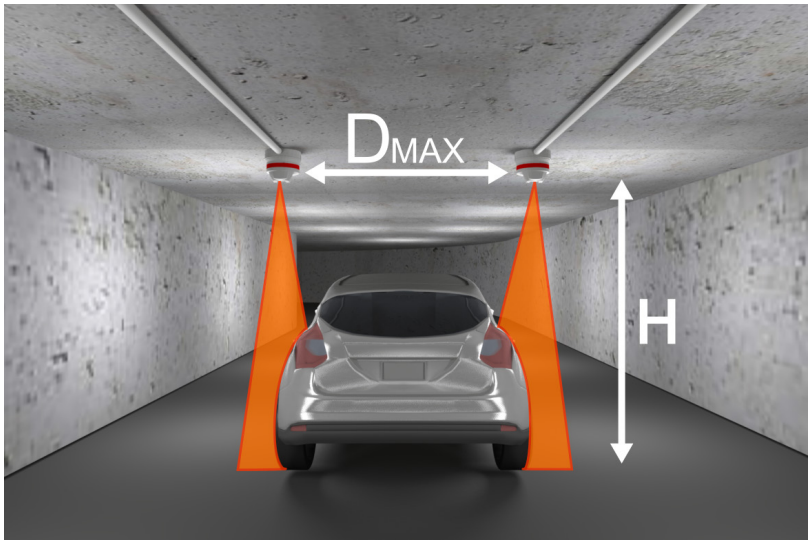


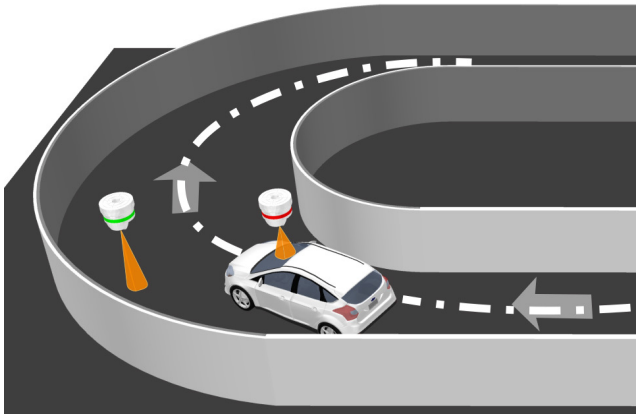
Fig. 4 *Sensor height*

Sensor height (m)	Max. distance (m)
2.5	2.53
2.4	2.45
2.3	2.38
2.2	2.31
2.1	2.23
2.0	2.16

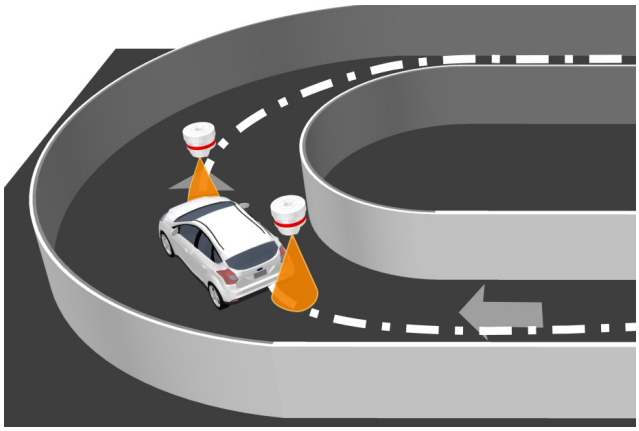
Tab. 2 *Maximum distance between sensors*

Example 11

In a one-way lane larger than the standard (2.5 to 3.25 m), SBPBASEA bases together with the sensors are placed in the middle of the lane:



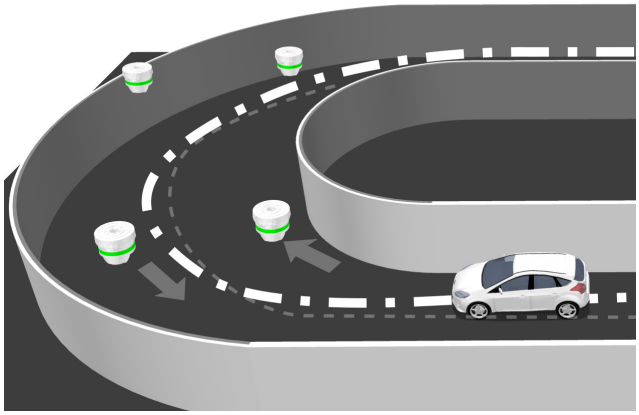
One of the SBPBASEA together with the sensor has been placed too far from the middle of the lane



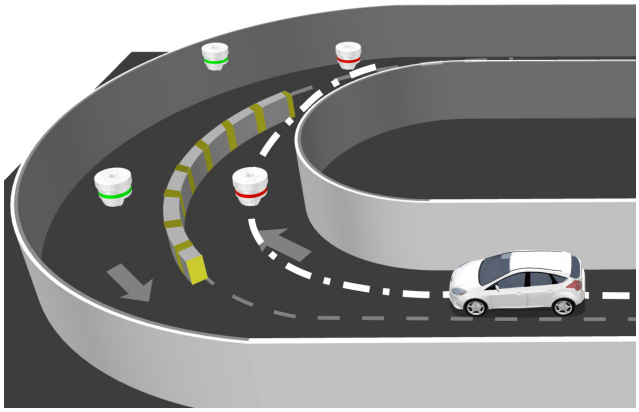
The SBPBASEA are placed in the middle of the driving lane where the car passes

Example 12

In a two-way lane, a delineator should be placed between the lanes to prevent cars from passing in the middle and to permit the correct cars counting.



The car passes in the middle of the lane without activating any sensors

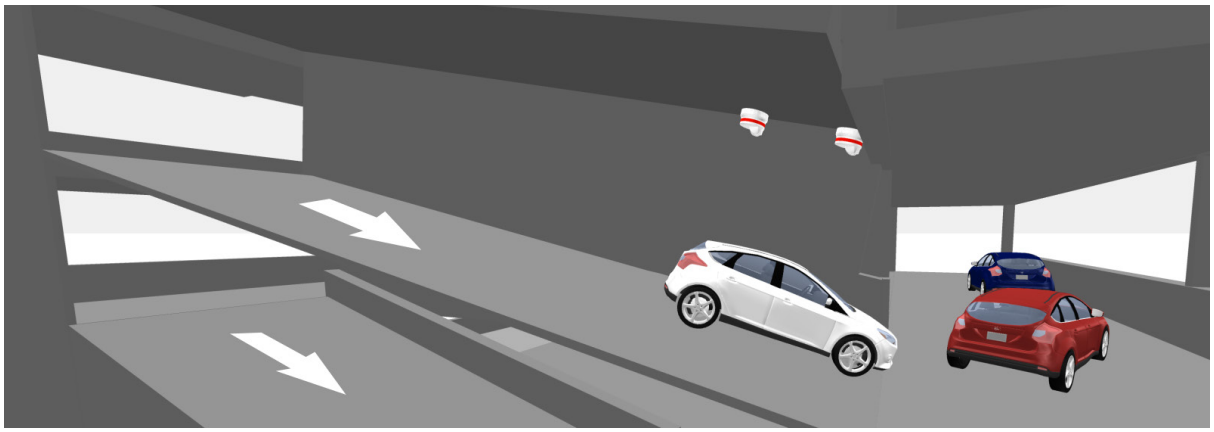


The delineator permits the correct counting for both the lanes

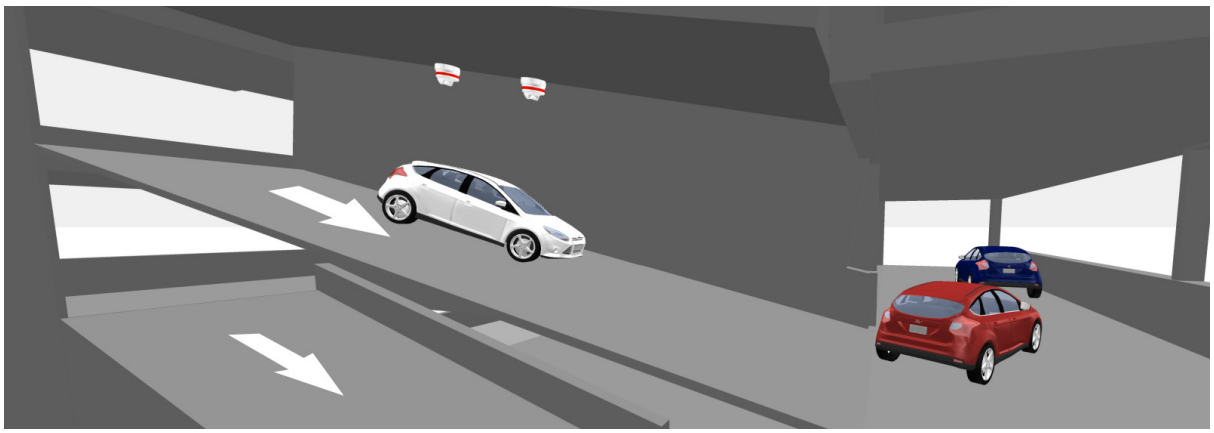
Example 13

To prevent queues from increasing/decreasing the counter wrongly, the base and sensors should be placed in the center of the ramp among the floors instead of at the beginning/end. In queue situations, due to slow speed or bumper-to-bumper driving, the sensors might not be able to distinguish one car from another and the counting might not be performed correctly.

Note: should queues be frequent in the areas where the SBPSUSCNT sensors are placed, a single-bay monitoring solution has to be considered by using the SBPSUSLxx sensors.



The SBPBASEA bases together with the SBPSUSCNT sensors have been placed at the end of the ramp



The SBPSUSCNT sensors work properly if placed in the middle of the ramp

SBPBASEA mounting

Place the sensor with the vertical mark at the tip of the triangle base.
Turn the sensor clockwise until the vertical mark is positioned at the rear end of the triangle. The sensor is now attached to the base.
Release the sensor by turning it anti-clockwise.

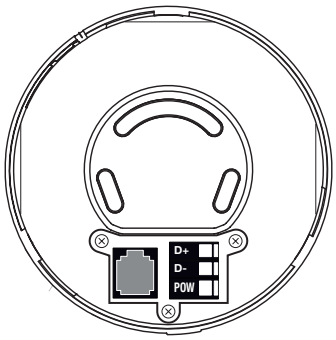


Fig. 5 *Basepart: mounted on the ceiling*

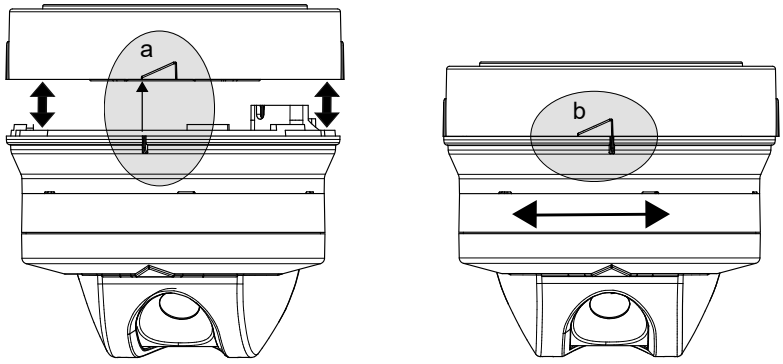


Fig. 6 *Mount / Unmount*

When mounting the SBPSUSxxx sensor on the ceiling, the sensor must be installed at an angle of maximum ± 5 degrees deviation from the ceiling surface.
Mount the SBPBASEA and the sensor (SBPSUSL45 only) with a maximum horizontal deviation of ±2 degree to have the best performance in terms of signal reliability.
See drawing below.

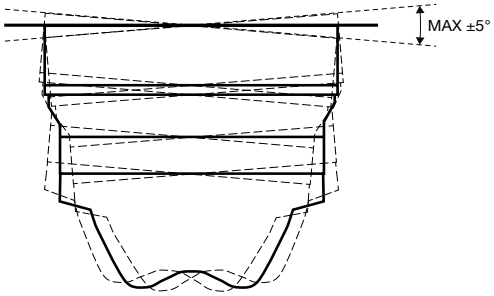


Fig. 7 *Maximum ±5° vertical deviation*

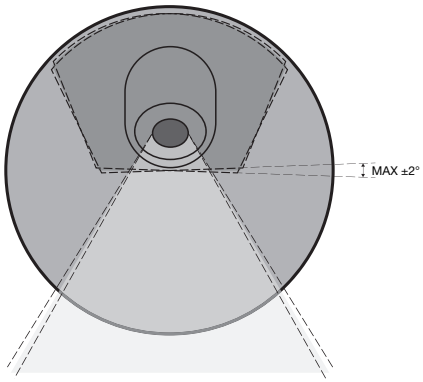


Fig. 8 *Maximum ±2° horizontal deviation. Bottom view*

Make sure that there is some extra wire for the sensor so that maintenance of the sensor/base in the future is enabled. Also place the wire correctly to avoid damage to the cable isolation.

Additional conventional warranty

This product is provided with a ten-year warranty. For further information, please refer to the ***Additional conventional warranty - Performances and proper functioning.***

References

Further reading

Information	Document	Where to find it
Carpark installation	CP3 manual	
UWP 3.0 installation guide	System manual	
UWP 3.0 software manual	UWP 3.0 tool manual	
CP3 troubleshooting guide	Troubleshooting guide	
Installation manual	IM_SBPBASEA	

Order code

SBPBASEA

Note: The base is delivered without a sensor. Please order it separately.

CARLO GAVAZZI compatible components

Purpose	Component name/code	Notes
Controller	UWP30RSEXXX	
Bus generator	SBP2MCG324	
Lane sensor	SBPSUSL45	
Vertical sensor	SBPSUSL	
Counter	SBPSUSCNT	
LED indicator	SBPILED	

SBPWSIx

Outodoor, in-ground wireless sensor

Benefits

- **Long life lithium battery.** Up to 10 years.
- **Wide temperature range.** -40°C to +85°C.
- **Long range communication.** Up to 2 Km in urban environment, 250 m in typical applications.
- **Available in different version.** Long Range wireless, LoRaWAN® or NB-IoT.
- **Easy and invisible installation.** Flush mount under the road surface.
- **Strong resistance.** To mechanical influences and heavy traffic.
- **Reduced operating costs.** Once installed, no maintenance is required.

Description

The wireless sensor is part of the Carpark system, which contains other variants of sensors, controllers and displays.
SBPWSIx is designed to be buried under the parking bay and it will be completly invisible.
It detects the occupied/free status of the parking bays by using the earth's magnetic field.
The sensor is available in two versions according to the communication protocol: Long Range wireless/LoRaWAN® or NB-IoT.
The SBPWSI1 sensor can be configured to transmits the parking bay status to the central gateway SBPCWSI1 using Long Range wireless communication or directly to the LoRaWAN® networks, while the SBPWSI2 sensor communicate directly to the NB-IoT bridges and then to the cloud.

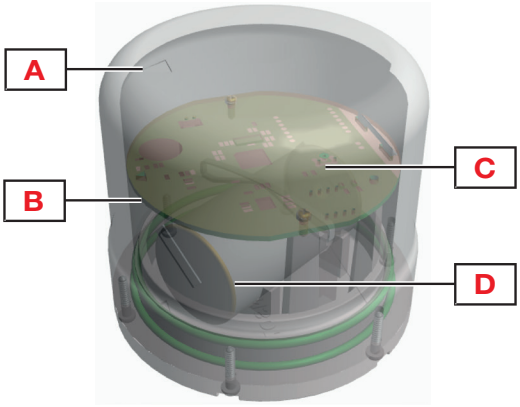
Applications

Parking Guidance Systems

Main functions

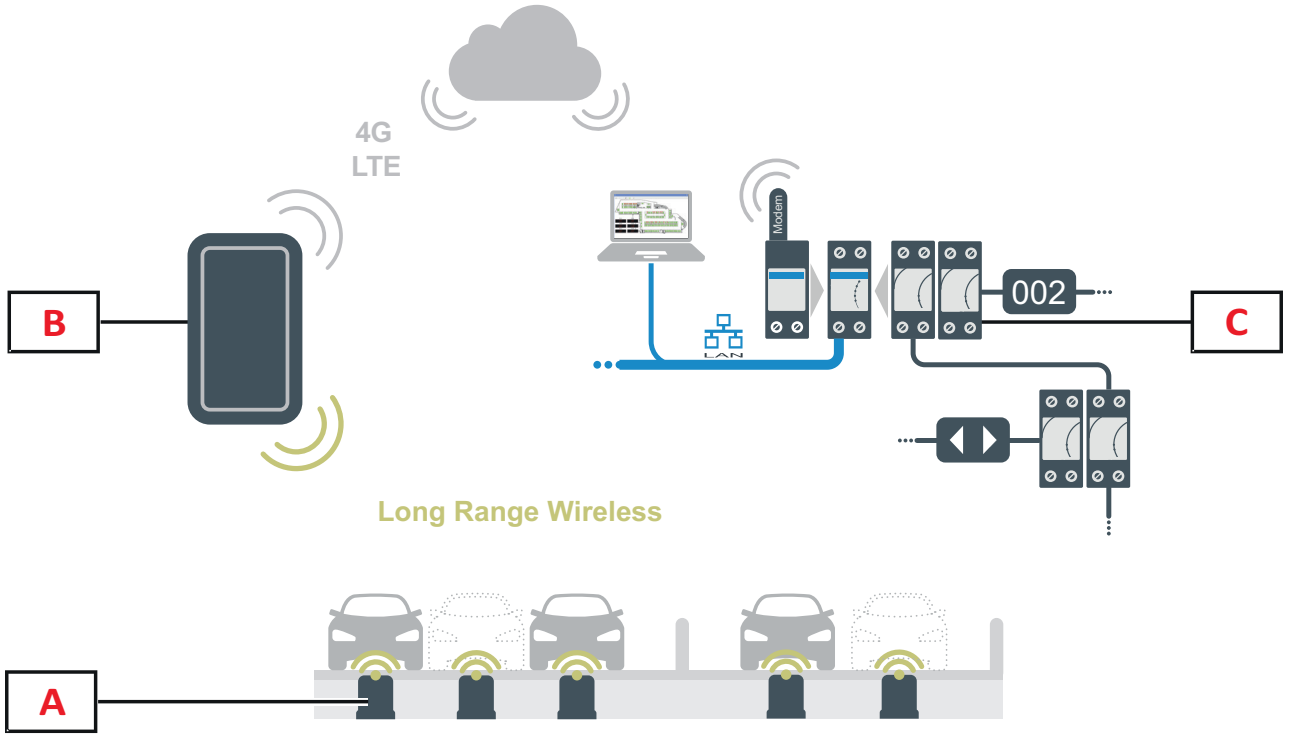
- Presence detections of cars in outdoor parking bays.

Structure



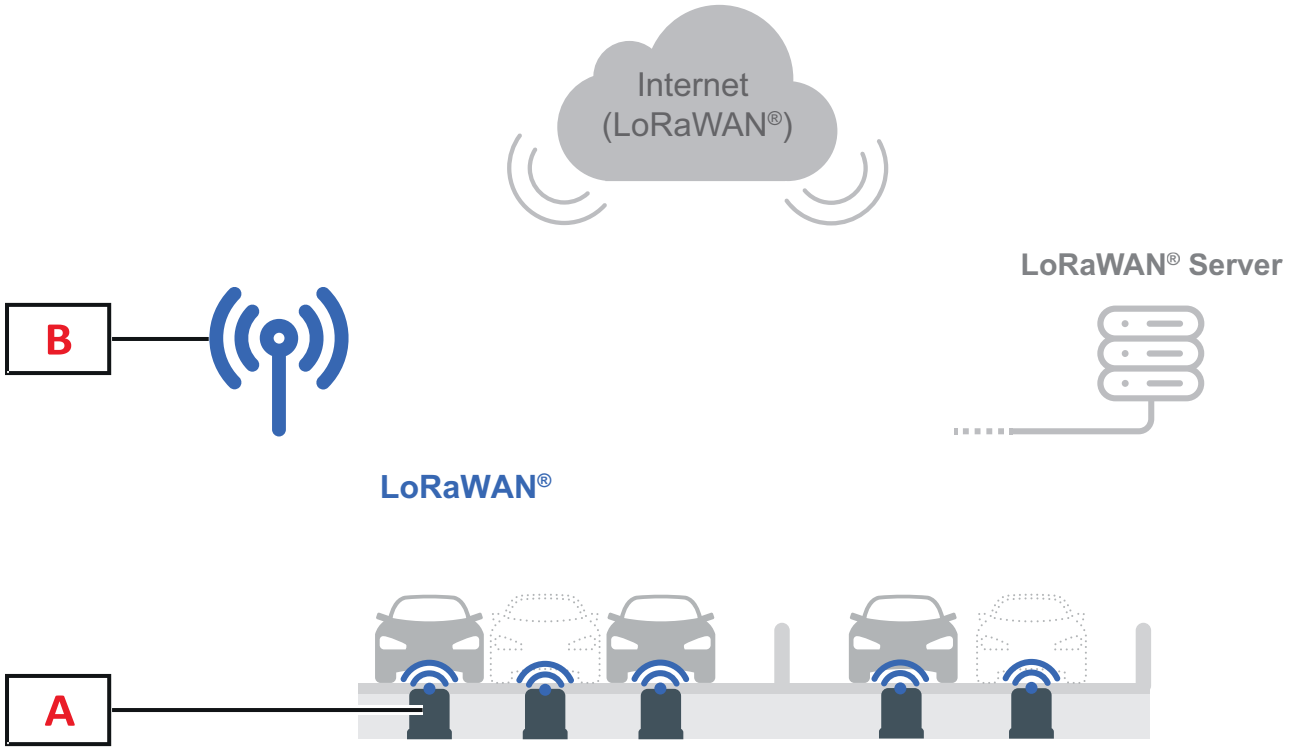
Element	Component	Function
A	Arrow indicator	Indicates the orientation of the sensor to the direction of SBPCWSI1 central gateway or LoRaWAN® and NB-IoT bridges
B	Reed switch	Wakes the sensor up from “deep sleep” mode by using a magnet
C	Electronic board	Contains: three-axis magnetic field sensor, wireless chip and antenna
D	Lithium battery	Powers the sensor up

Architecture (private Long Range Wireless)



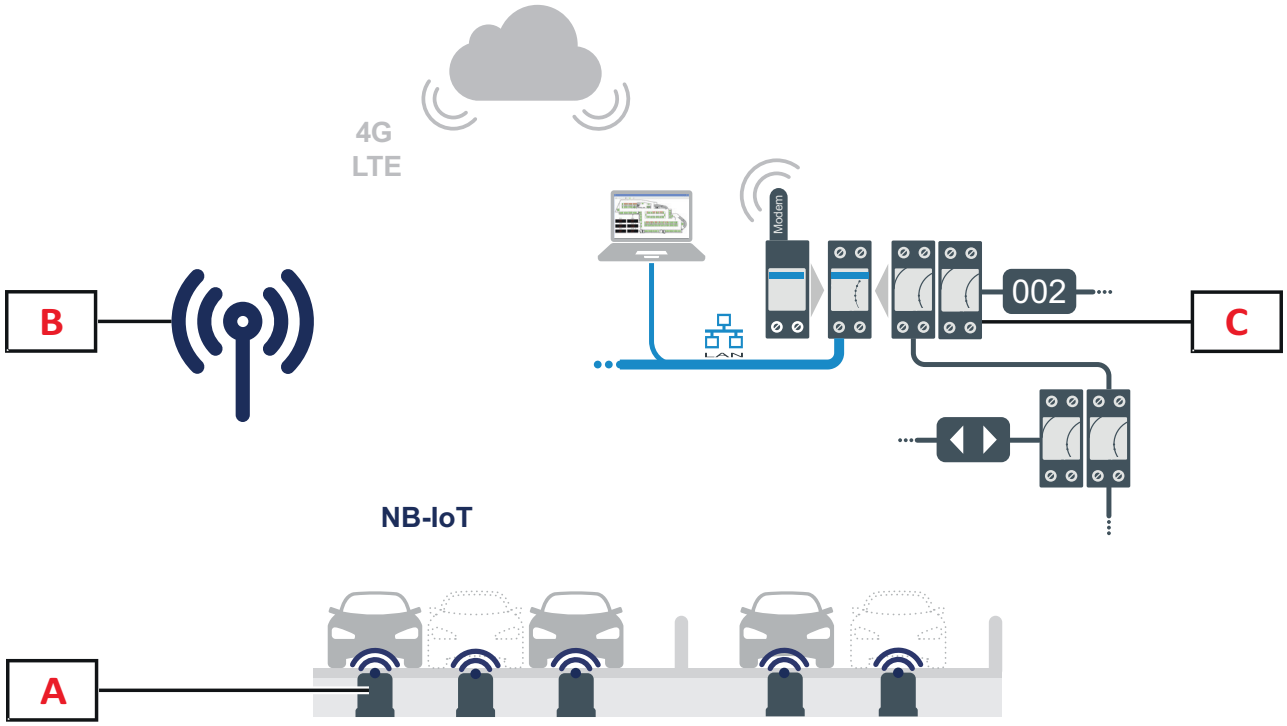
Element	Component	Function
A	SBPWSI1 sensor	Detects changes to the earth's magnetic field caused by the presence of ferrous objects (cars).
B	SBPCWSI1 central gateway	Collects via long range wireless the bay status that is sent by each sensor in real-time. It can manage up to 100 sensors and can be positioned up to 250 m far from sensors.
C	UWP 3.0/SBP2CPY system	Receives via cloud the data collected by SBPCWSI1 gateways. The bay status is managed in the same way as all the other sensors (ultrasonic, IP camera).

Architecture (LoRaWAN® network)



Element	Component	Function
A	SBPWSI1 sensor	Detects changes to the earth's magnetic field caused by the presence of ferrous objects (cars).
B	Gateway/Network LoRaWAN®	Collects via standard LoRaWAN® gateways/networks the bay status that is sent by each sensor in real-time.

Architecture (NB-IoT network)

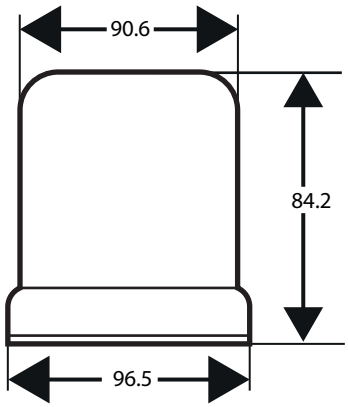


Element	Component	Function
A	SBPWSI2 sensor	Detects changes to the earth's magnetic field caused by the presence of ferrous objects (cars).
B	NB-IoT bridges	Collects via NB-IoT network the bay status that is sent by each sensor in real-time.
C	UWP 3.0/SBP2CPY system	Receives via cloud the data collected by NB-IoT bridges. The bay status is managed in the same way as all the other sensors (ultrasonic, IP camera).

Features

General

Material	Black plastic (ABS)
Dimensions	Ø min. 90.6 mm, max 96.5 mm Height 84.2 mm
Weight	500 g
Protection degree	IP68 Note: completely sealed housing



Environmental

Operating temperature	-40 to 85°C (-40 to 185°F)
Storage temperature	-40 to 80°C (-40 to 176°F)
Humidity (non-condensing)	0 to 100% RH

Compatibility and conformity

Approvals	CE
Conformity	ETSI EN 300 220-1 (v 3.1.1) ETSI EN 300 220-2 (v 3.1.1) ETSI EN 301 489-1 (v 2-2-0 draft) ETSI EN 301 489-3 (v 2.2.1 final draft) EN62311:2008

Power Supply

Power supply		Built-in lithium battery
Battery	Type	Li-SOCl2 metallic lithium non-rechargeable, non-replaceable; 4.53 g
	Voltage	3.6 V
	Capacity	SBPWSI1: 17.5/19 Ah SBPWSI2: 13 Ah
	Lifetime	SBPWSI1: 8-10 years SBPWSI2: up to 5 years Note: depending on the use and the enviroment.

Note: The device contains metal-ion batteries. For the sending, you must comply with the relevant packaging and labeling regulation.

Sensor

Technology	Three-axis magnetic field regression
Detection distance	0 - 50 cm

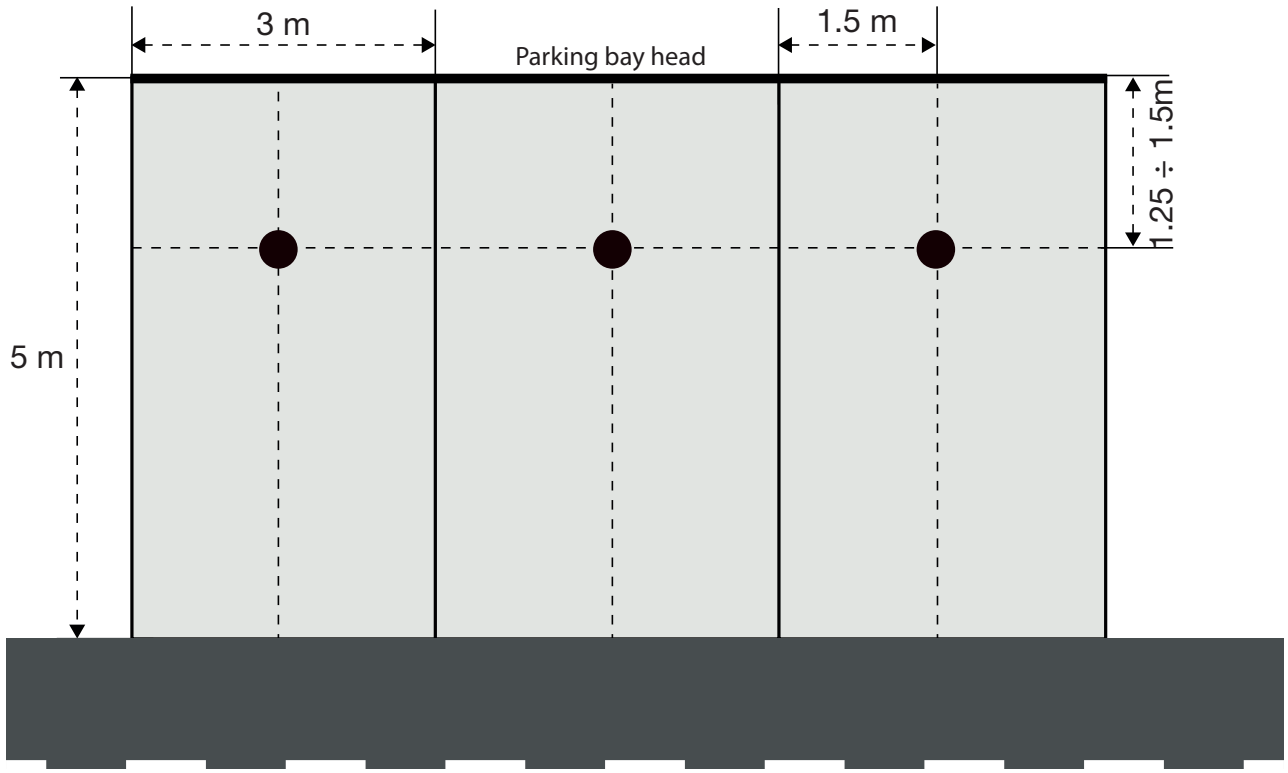
Communication

Protocol	SBPWSI1	Long Range wireless/LoRaWAN® **Note:** the protocol is selectable by means of the Sensor Manager software
	SBPWSI2	NB-IoT **Important: each sensor SBPWSI2 needs a SIM card (2FF) to communicate**
Operating frequency	Long Range wireless	ISM, 863-870 MHz (EU)
	LoRaWAN®	
	NB-IoT	Licensed band, 5/8/20 LTE
Transmission power	Long Range wireless, LoRaWAN®	<14dBm (25mW)
	NB-IoT	Up to 23 dBm
Communication distance		SBPWSI1: up to 250 m SBPWSI2: up to 2000 m **Note**: maximum distance depends on the SBPWSIx model and on enviroment condition
Antenna		Integrated

Mode of operation

Installation

The sensor should be buried in the center of the parking bay at a depth of 15-20 mm and at 1.25-1.50 m from the parking bay head. See picture below.



Calibration

The calibration will be carried out after the installation using the Sensor Manager software and the SBPCAL calibration unit.
Make sure there are no cars and metal objects within 5 m.
The procedure is described in the Sensor Manager User manual

References

Further reading

Information	Document	Where to find it
Installation manual	IM SBPWSI1	
	IM SBPWSI2	
User manual	Sensor Manager software	

Order code

SBPWSI☐

Complete the code entering the corresponding option instead of ☐

Code	Options	Description
SBP	-	Carpark
W	-	Wireless
SI	-	Sensor
☐	1	Long Range wireless/LoRaWAN®
	2	NB-IoT

CARLO GAVAZZI compatible components

Purpose	Component name/code key	Notes
Central gateway	SBPCWSI1	
Controller	UWP30RSEXXX	
Carpark server	SBP2CPY24	

Carlo Gavazzi Automation Components

Carlo Gavazzi Automation Spa - IT Department

SBPCAL	CAR PARK CALIBRATION UNIT
	Short description: CAR PARK CALIBRATION UNIT
	Long Description: CAR PARK CALIBRATION UNIT
	Type of accessory: Test unit

Product Width	169.5 mm
Product Height	135 mm
Product Depth	27 mm
Package Width	220 mm
Package Height	320 mm
Package Depth	510 mm
Package Weight	1500 g
With approval according to UL	No
Wall mounting/direct mounting	No

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