SBPSUSL

CARLO GAVAZZI

Dupline® Carpark sensor vertical detection angle

► Benefits

- Vertical detection angle ultrasonic sensor to be mounted above the car in the middle of the parking bay
- Easy and fast installation
- Automatic temperature compensation
- Programming and test over network by use of a central PC based configuration tool

► Description

The ultrasonic sensor is part of the Dupline® Carpark system, which contains other variants of sensors, controllers and displays.

The SBPSUSL sensor is a type to be installed in the middle of the space in a height of 2-4 m and it is normally used together with a SBPILED indicator installed at the lane side where it is highly visible.

The SBPSUSL is normally only used, when it is not possible or practical to install the sensor SBPSUSL45 with integrated LED indicator for mounting at the lane side.

Each sensor needs to be connected to the Dupline® 3-wire bus.

The bus provides power and enables the sensors to transmit the status to the carpark controller SBP2WEB24 / SBP2CPY24, which keeps track of the number of available parking spaces in an area and shows the result on the connected displays.

► Applications

Parking Guidance Systems

► Main functions

- Detection of presence of car in indoor parking space

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Features

▶ **Power Supply**

Nominal supply	20-30 VDC, 27 mA, CL. 2
Consumption	0.78 W
Consumption on the Dupline® bus	1 mA

▶ **Input /Output Specifications**

RJ12 connector	Female: In base Male: With cable in sensor	Internal communication between sensor and base	
2 x 3-pin Connector (Only base)	Max. 1.5 mm²	D+	
		D-	
		POW	

Note: The base connectors are using the "push-wire-connection" method. Use a 1.5 mm² single core wire or a stranded wire with ferrules for the sensor installation.
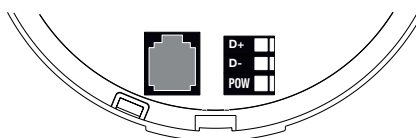

Fig. 1 *Input - Output*

▶ **Sensor**

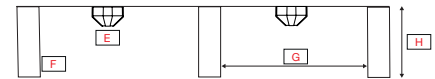| Technology	40 KHz ultrasonic element
Max. distance between ceiling and floor	4.0 m
Min. distance between ceiling and floor	1.5 m
Min. calibration distance	2.0 m
Mounting deviation	±5 degree max
Time response total from sensor to SBP2WEB24	4.0 s
MTBF	70 000 hours
Sensor temperature compensation	The built-in temperature compensation makes the sensor stable and reliable without any calibration
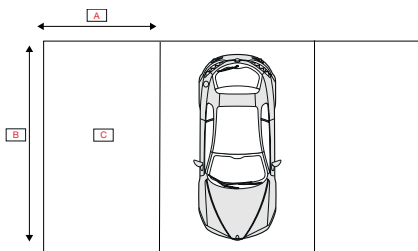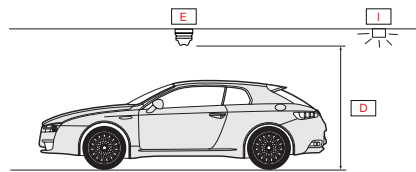
Fig. 2 *Parking bay* **Fig. 3** *SBPSUSL* **Fig. 4** *Sensor placed on ceiling*

A	2.2 m ... 3 m	**F**	Ceiling beams
B	4.2 m ... 5.5 m	**G**	≥ 20 cm
C	Parking bay	**H**	≤ 65 cm
D	2 m ... 4 m	**I**	LED indicator (SBPILED)
E	Sensor		

Communication

Protocol	Smart-Dupline®

Environmental

Operating temperature	-40 to 70°C (-40 to 158°F)
Storage temperature	-40 to 80°C (-40 to 176°F)
Degree of protection	IP34
Humidity	5-90% relative humidity
Pollution degree	3 (IEC60664)

Mechanics

▶ **Housing**

Casing	ABS	
LED protection	Transparent polycarbonate	
Case colour	Light grey	
Dimensions	Base A + Sensor	103.5 x 116 mm
	Base B + Sensor	122 x 116 mm
Weight	Base A + Sensor	275 g
	Base B + Sensor	300 g

▶ **Wiring**

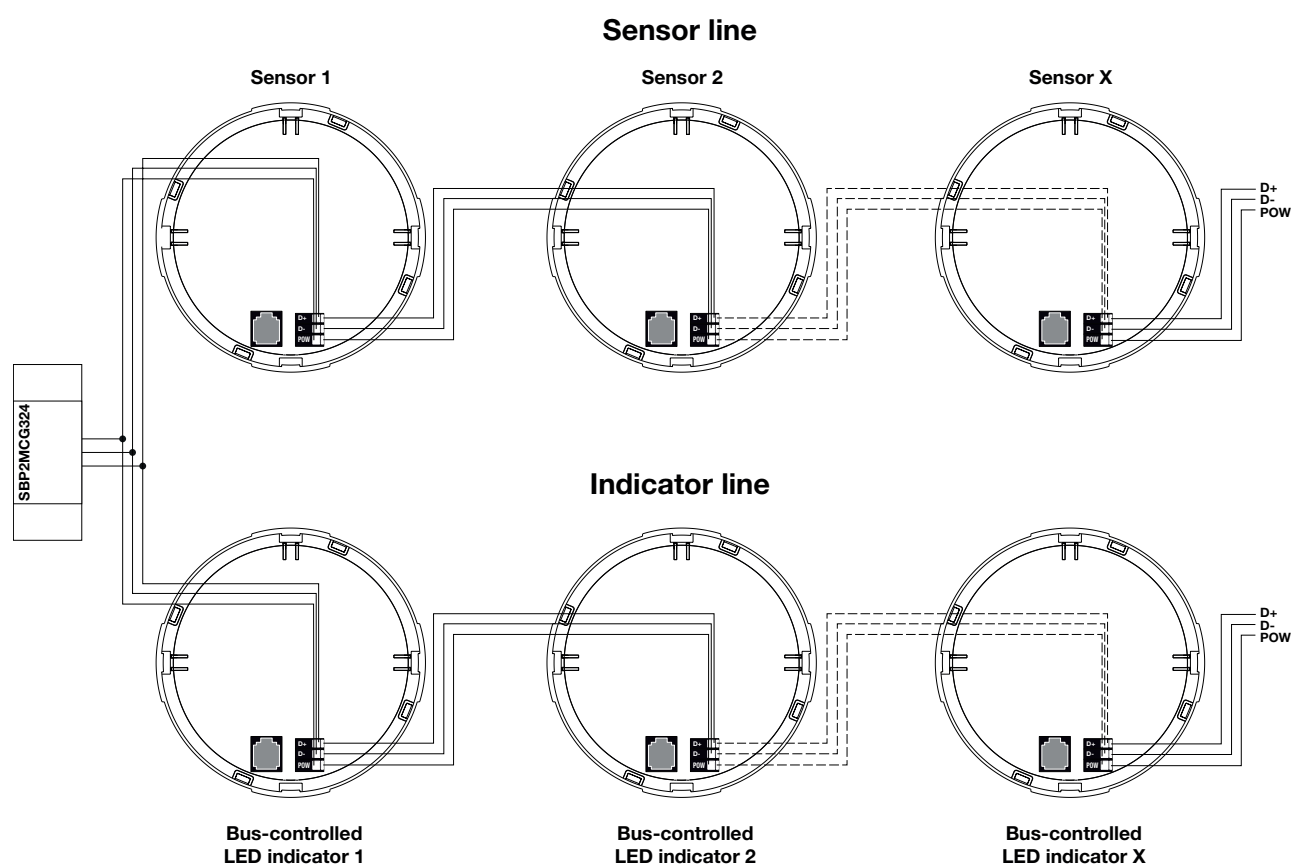**Sensor line**

Indicator line

Fig. 5 *Wiring SBPSUSL and SPILED*

Note: The wiring of the sensors must always be made with a 1.5 mm^2 single-core wire, or a stranded wire with ferrules.

Compatibility and conformity

▶ **Approvals**

CE-marking	$C\ \epsilon$
Approvals	c ⓊⓁ 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)

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Configuration

When sensor and base are mounted and connected to the Dupline® 3-wire network with power and communication, they are ready for configuration.

The central SBP2WEB24 PC based configuration tool automatically scans the network and finds all the sensors and other connected devices.

Once this has been done, the user assigns addresses to the sensors connected simply by walking from sensor to sensor and pressing the configuration button in the bottom.

Please refer to the design- and installation manual for further details about configuration.

Mode of operation

The ultrasonic sensor emits an acoustic signal at a frequency of 40 kHz which is reflected when it hits the floor or a parked car and returned to the sensor. Depending on the shape of the received echo signal, the sensor can determine if there is a car parked or not.

The sensor is to be mounted in the middle of the space above the car.

See the drawings of the particular sensor installations below.

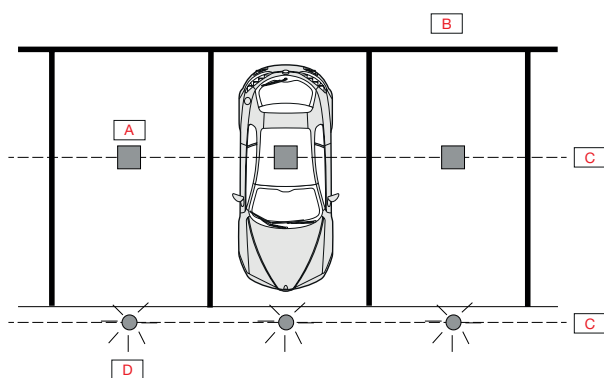All programming of the sensor is thoroughly described in the SBP2WEB24 software manual: http://productselection.net/searchproduct.php

Fig. 6 *Sensor installation SBPSUSL*

A	SBPSUSL	C	Dupline® bus
B	Parking spaces	D	Programmable LED indicator (SPILED)

▶ Mounting

The sensor must be mounted on either base holder A (cable tray or conduit) or base holder B (ceiling mount).

Place the sensor with the vertical mark at the tip of the base's triangle.

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 pressing a screwdriver into the vertical slot on the base and turn the sensor anti-clockwise.
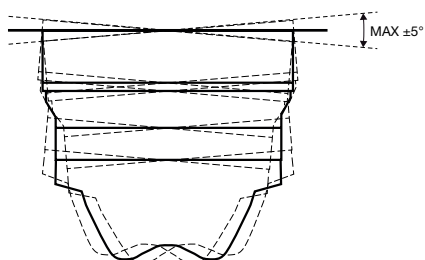
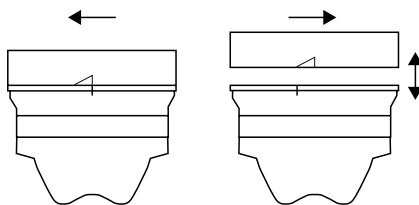See drawing below.

Fig. 7 *Maximum ±5° vertical deviation*
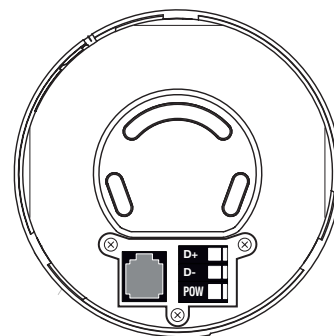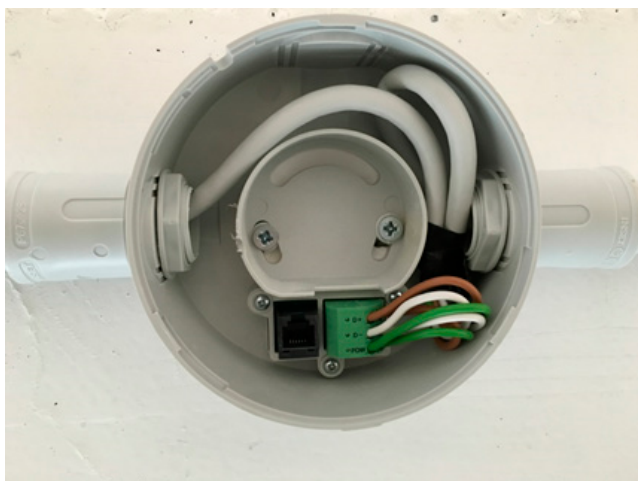
Fig. 8 *Open/close*

Fig. 9 *Basepart: mounted in ceiling*

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 on the cable isolation. See picture.

Place the wire around the inner part of the base to avoid damage of the isolation of the cable.

Sensor status and calibration

Status	Condition	LED status	Note
Normal	Occupied	Colour number OCC	By default, colour number 0 is selected, and it is configured to be red
	Vacant	Colour number VAC	By default, colour number 1 is selected, and it is configured to be green
Line procedure*	Disabled	Normal (occ / vac)	Module is not addressed by the line command
	Enable	Yellow normal flash	Module is addressed by the line command and is acknowledging the LINE POSITION
	Accepted	Green fast flash (for 3 sec)	Module is addressed by the line command and has acknowledged the line position number
	Assigned	Green normal flash	Module is addressed by the line command but has already got a valid line position number
Remote calibration	In progress	Yellow fast flash (About 15sec)	
	Error	Red normal flash (3sec)	
	OK	Green normal flash (3sec)	
Local calibration	Start delay	Yellow slow flash (About 15sec)	
	In progress	Yellow fast flash (About 15sec)	
	Error	Red normal flash (3sec)	
	OK	Green normal flash (3sec)	
Start-up	First 3 sec	White	If it is not white, LEDs are damaged

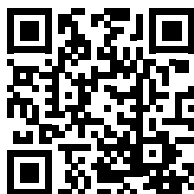* Line procedure is described in the installation manual.

References

> **Product selection key**

👉 **SBPSUSL**

Code	Option	Description
SB	-	Smart Building
P	-	Parking
SUS	-	Sensor
L	-	Vertical sensor with built-in LEDs

Note: The sensor is delivered without a base. Please order base A or B separately.

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