SBPSUSCNT

Dupline® Carpark 3 Sensor, count

Benefits

- SBPSUSCNT: Vertical sensor to be mounted directly above the driving lane, in a count system
- Easy and fast installation
- Automatic temperature compensation
- Programming and test over network by use of a central PC based configuration tool
- Fast reaction: detects cars with a speed of up to 20Km/h

Description

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

The SBPSUSCNT is a vertical sensor, which is designed to detect cars in a count system.

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

Carpark count system.

Main functions

- Ultrasonic sensor for detection of cars in a count system.

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 mm^2	D+
		D-
		POW

Note: The base connectors are using the "push-wire-connection" method. Use a 1.5 mm^2 single core wire or a stranded wire with ferrules for the sensor installation.
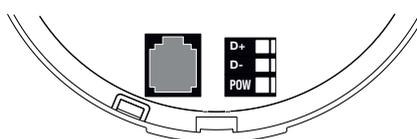

Fig. 1 *Input - Output*

▶ Sensor

Technology	40 KHz ultrasonic element
Max. distance between ceiling and floor	2.5 m
Min. distance between ceiling and floor	2.0 m
Mounting deviation	±2 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

H=2 m => D=0.61
H=2.5 m => D=0.76 m
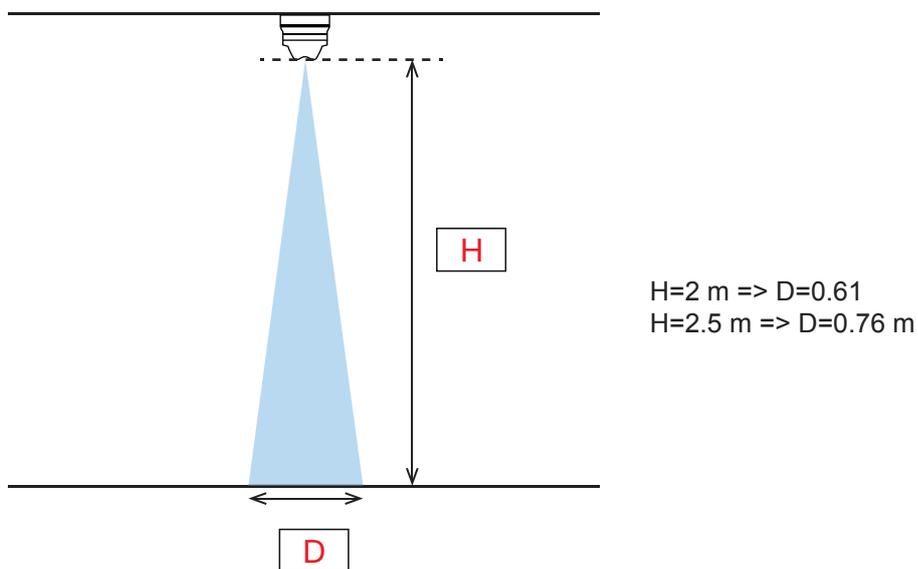
H	Distance to floor	D	Beam diameter
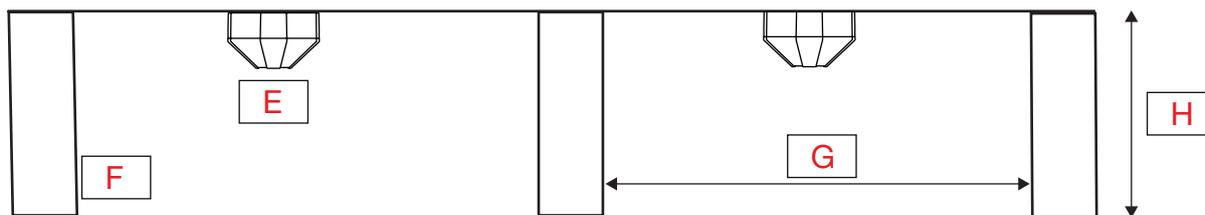
Fig. 2 *Sensor placed on ceiling*

E	Sensor	G	Min. 40 cm
F	Ceiling beams	H	Max. 65 cm

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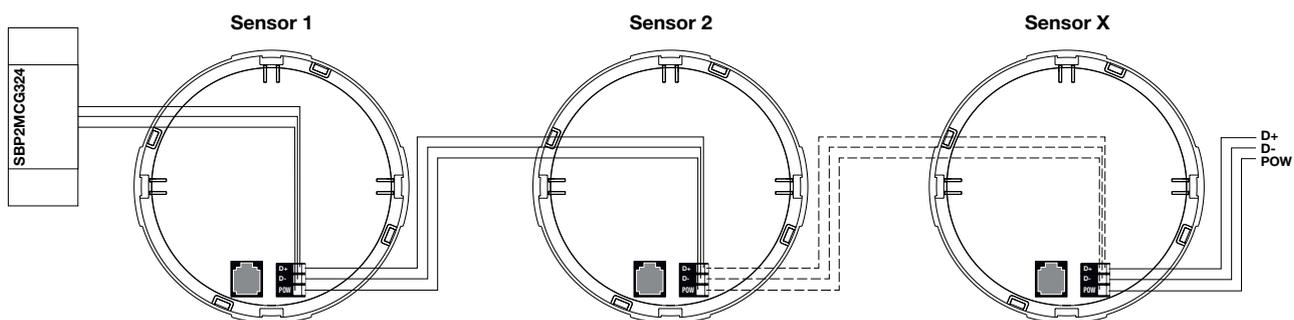
Note: The wiring of the sensors must always be made with a 1.5 mm^2 single-core wire, or a stranded wire with ferrules.

▶ **Dimensions**
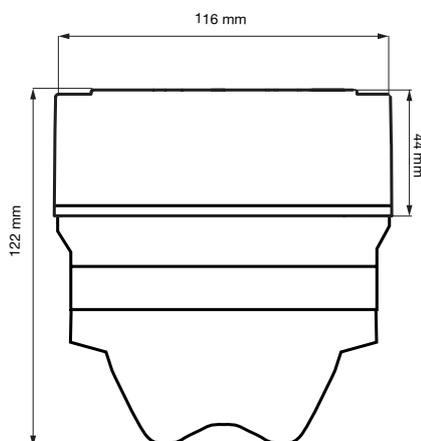
Fig. 3 *Ceiling mounting - SBP-BASEB + SBPSUSCNT*
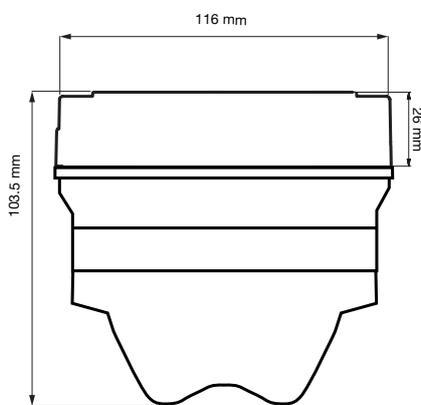
Fig. 4 *Rail mounting - SBPBASEA + SBPSUSCNT*
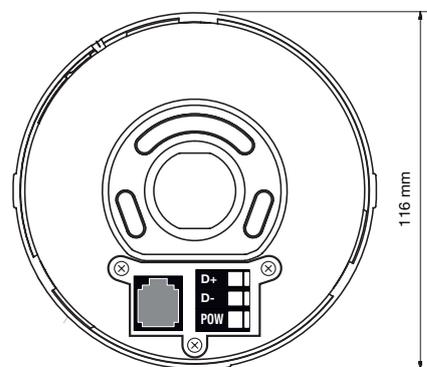
Fig. 5 *Bottom view*

Compatibility and conformity

▶ **Approvals**

CE-marking	$C \in$
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)

Programming

When base and sensor are mounted and powered, they must be programmed by the configuration tool SBP2WEB24.

By entering the configuration tool, the installer can find the SIN number from the connected modules (sensors, LED indicators, display interfaces, etc.) and thereby verify if the module is connected or not.

If it is connected, the next step is to assign the sensor to a lane, a line and a position, and to calibrate the sensor.

If it is not connected, the installer must focus on the installation and the connections of the cables.

Please refer to the SBP2WEB24 software manual for further information. The software manual can be downloaded from this link; http://productselection.net/searchproduct.php

Mode of operation

The ultrasonic sensor emits an acoustic signal at a frequency of 40 kHz which is reflected when it hits the floor and returned to the sensor. The sensor can detect a car driving beneath the sensor. The signal is transmitted to the SBP2WEB24 controller which keeps track of the number of available parking spaces in an area and shows the result on the connected displays.

The sensor must be mounted in the ceiling or on a rail in the driving lane pointing down. Floor-to-sensor distance must be at least 2.0 and not more than 2.5 m.

To provide the best measuring result, the sensor must follow the recommended installation distances in all circumstances.

See the drawings of the particular sensor installations below.

When the sensor is mounted, it must be installed at an angle of maximum ±2 degrees deviation to accomplish a safe and reliable signal. The quality and the accuracy of the signal depend on the installation.

See drawing below.

The sensor must be used in counting systems, where rapid detection is needed. Place two sensors in the ceiling or on a rail one after another in the lane. The counting system can count the number of cars entering or leaving the carpark area.

The SBPSUSCNT has bright built-in LEDs with up to eight different colours.

The colours are freely selectable and can be switched on during commissioning and turned off later if not used in the software.

When connected to the Dupline® 3*wire bus, the sensor must be programmed by the SBP2WEB24 configuration tool.

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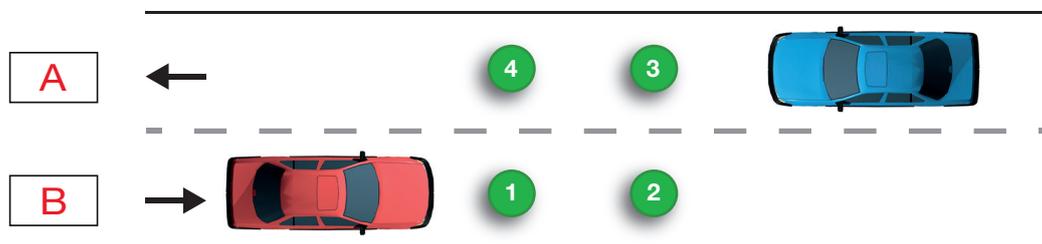

Fig. 6 *Example of a sensor in a count installation*

A	Exit	B	Entrance

Correct installation of the sensors is essential to accomplish an accurate counting system
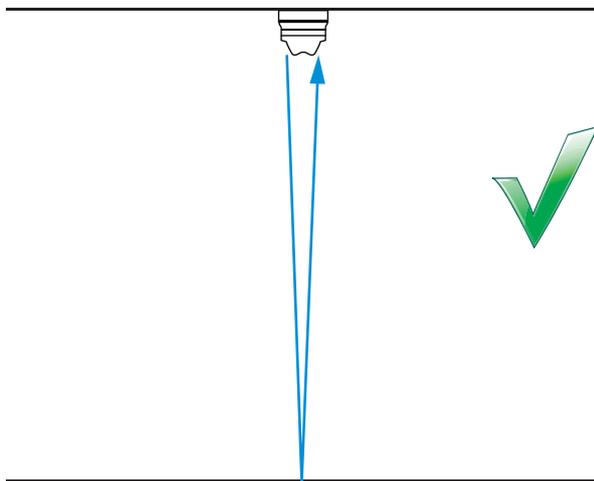

Fig. 7 *Correct angle*
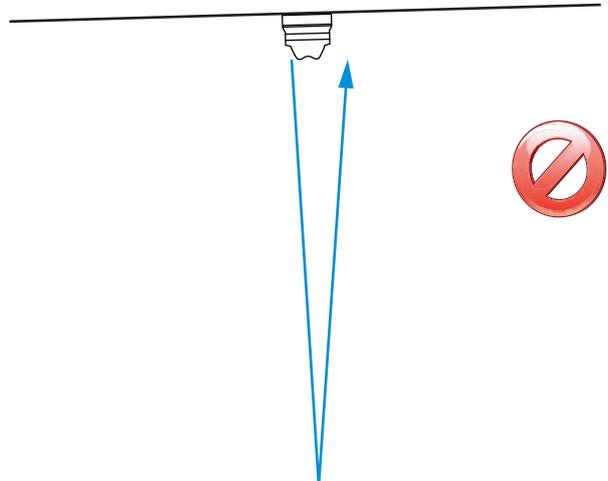

Fig. 8 *Incorrect angle*

▶ Mounting

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.

When mounting the sensor to the ceiling or rail, the sensor must be installed at an angle of maximum ±2 degree deviation to accomplish a safe and reliable signal.

See drawing below.
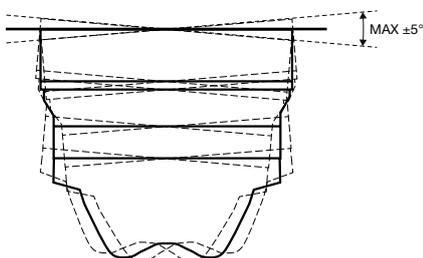
Fig. 9 *Maximum ±2° vertical deviation*
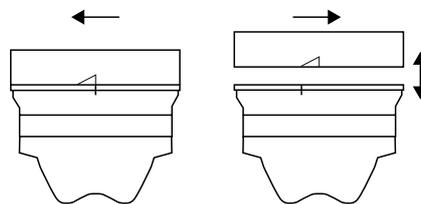
Fig. 10 *Open/close*
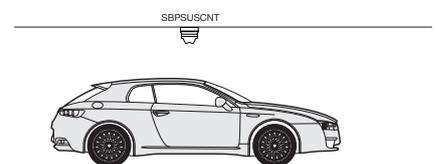
Make sure that there is some extra wire for the sensor so that maintenance of the sensor/base in the future is enabled. Also place the wire correctly to avoid damage to the cable isolation. See picture.
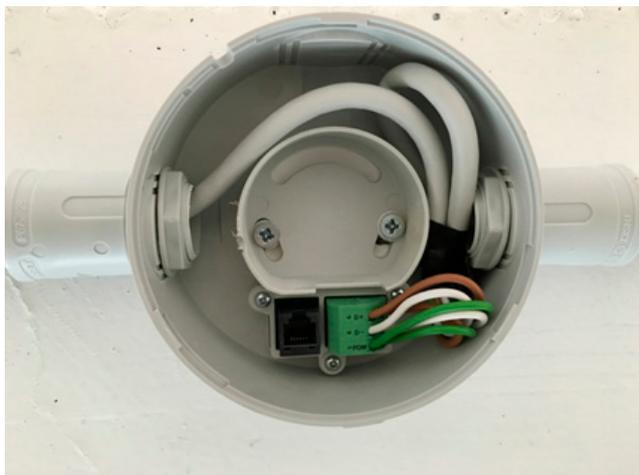
Place the wire around the inner part of the base to avoid damage to the isolation of the cable.

Sensor status and calibration

Status	Condition	LED status	Note
Normal	Occupied	Colour number OCC	By default, colour green is selected, and it is configured to be red
	Vacant	Colour number VAC	By default, colour red is selected, and it is configured to be green
Line procedure*	Disabled	Normal (occ / vac)	Module is not addressed by the line command
	Enabled	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

SBPSUSCNT

Code	Option	Description
SB	-	Smart Building
P	-	Parking
SUS	-	Sensor
CNT	-	Carpark 3 count system

Note: The sensor is delivered without a base. Please order SBPBASEA or SBPBASEB separately.