



# Parking Lot Sensor | PLS

*Wireless sensors for detecting parking space occupancy*

*Wireless sensors detect and report parking space occupancy, thus enabling active parking lot management features, such as search, navigation and reservation.*

*The easy retrofit solution for parking lots is installed in minutes. It was designed for detecting with high reliability if a parking space is occupied or available.*

## TWO INDEPENDENT SENSOR PRINCIPLES



Magnetometer



Radar



Cover Cap and Screw



Sensor Core (TPS110)



Sensor Base

(also available in different colours<sup>1</sup>)



## OPERATING CONDITIONS

Reference	Range
Operating temperature range	- 30... + 65 °C
Humidity range	0...95 %
Resistant to mechanical influences <sup>2</sup> : snow-plough <sup>3</sup> , heavy goods vehicles (CV) (N1 - N3) <sup>4</sup> and high-pressure cleaning	

## TARGET MARKETS AND CERTIFICATIONS

PLS Variant	Certifications
TPS110 EU	European Union (CE) Singapore (IMDA)
TPS110 JP	Japan (MIC) Australia (ACMA) Singapore (IMDA)
TPS110 IN	India (WPC/ETA)

## COMMUNICATION

PLS Variant	LoRa Frequencies	Transmitting Power
TPS110 EU	863-865/868-868.6/869.4-869.65 MHz (EU868)	max. 14 dBm ERP
Supported channel frequencies: 864.1 MHz, 864.3 MHz, 864.5 MHz, 868.1 MHz, 868.3 MHz, 868.5 MHz, 869.525 MHz		
TPS110 JP	920-923.4 MHz (AS923)	max. 14 dBm ERP
TPS110 IN	865-867 MHz (IN865)	max. 14 dBm ERP
Radar frequency: 2.4-2.4835 GHz; transmission power max. -28 dBm EIRP		

<sup>1</sup> The actual colour tone may differ from that shown on the data sheet. The exact colour designations can be found on page two

<sup>2</sup> According to product specifications

<sup>3</sup> Max. weight of 5,5 tons, shield: flexible flap towards ground, weight max. 1 ton, max. speed 20 km/h

<sup>4</sup> Definition of Commercial Vehicles Categories: 2007/46/EC as last amended by 385/2009

## DEVICE SPECIFICATION

Reference	Specification
Weight	191 g
Power supply	Lithium battery (Li-SOCI2, 3.6V, 1200mAh)
Battery lifetime	Up to 5 years <sup>7</sup>
IP class	IP67/IPx9K



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## Installation and Maintenance

Installation	Sensor to glue to different surfaces / screw in the ground <sup>5</sup>
Maintenance	No maintenance needed
Replacement	Core exchangeable without removing the base from the ground

## Performance Parameters

- ▶ Model based optimized parking state detection algorithm development with millions of data points from real parking events, adaptive algorithm ensure high detection reliability during the whole sensor lifetime
- ▶ 96% average parking state change detection performance<sup>7</sup> proven in field-tests with more than 2000 sensors and more than 46 different car types in real parking environments
- ▶ Self-learning calibration during the first five parking events
- ▶ Reporting of parking state changes within 35 sec. (typical)

## COMPONENTS

### Cover Cap

Color	RAL9005 / black
Weight	2 g
Material	PA6 GF35
Description	The cap with O-ring is positioned on top of the sensor core to protect the screw.

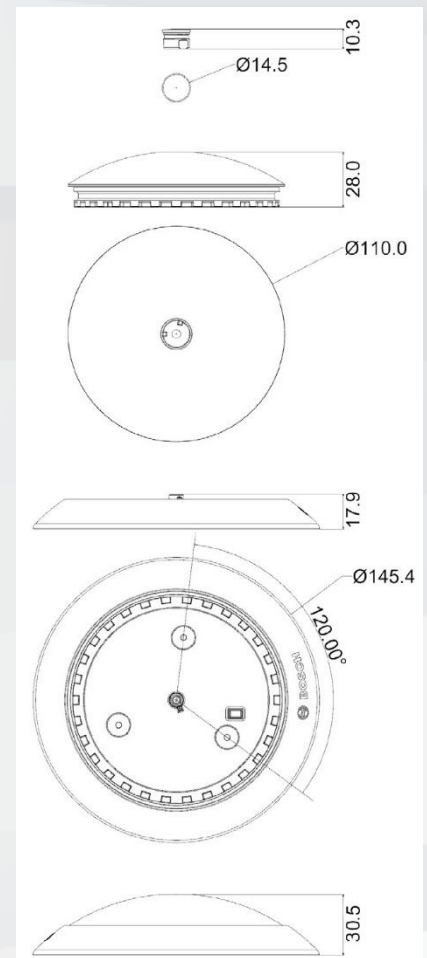
### Sensor Core (TPS110)

Color	RAL9005 / black; RAL7011 / irongrey
Weight	124 g
Material	PA6 GF35
Description	The Sensor-Core contains the sensing unit. It consists of housing, integrated battery, electronics, o-rings. The core will be installed into the base.

### Sensor Base

Color	Standard: RAL7011 (irongrey); further colours: RAL030.50.60 (Bosch red); RAL250, 60, 40 (D2) (Bosch Light Blue); RAL1023 (Traffic Yellow); RAL120.70.75 (D2) (Bosch Light Green) <sup>6</sup>
Weight	65 g
Material	PA6 GF35 (plasma treated on the bottom side)
Description	The Sensor Base is the part that is mounted on the ground.

## DRAWING / DIMENSIONS



## PARKING LOT SENSOR - INSTALLED STATE

<sup>5</sup> Requires separate 2K PUR based adhesive or screws anchor belts and sealing

<sup>6</sup> Standard: RAL7011, other colours on request

<sup>7</sup> Detailed conditions of the performance information are inside of the offer documentation

**GET IN CONTACT WITH US!**

**E-Mail: [support@bosch-connectivity.com](mailto:support@bosch-connectivity.com)**

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*Technical data subject to modification without notice.*

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