

PRODUCT OVERVIEW



Spatium is a dual parking space detector. The sensor detects occupancy status through LiDAR distance measurement and sends its status to the server via other sensors connected on the mesh network or directly to a gateway depending of the radio configuration.

Spatium is available in many radio configurations to fit different mechanical integrations (e.g., curb side, on walls, on a ceiling, in an underground parking). The sensor is equipped with an optional occupancy LED to indicate if one of the two parking space is available. The sensor is battery operated so no electrical installation is required. Lasts 5 years on battery in its standard configuration: 2 minutes between each scan and the occupancy LED is by default set to flash every 2.5 seconds. This option it is possible to achieve 10 years of battery life.

SENSOR

AT A GLANCE

- LiDAR for long range monitoring 4 inches to 30 feet (0.1 m to 10 m).
- 2 x Batteries: replaceable D (3V) format Li-Ion for a longevity of up to 5 years
*Battery life depends on measurement frequency.
- No electrical installation required.
- Multiple mechanical integration available.
- Two LiDAR to monitor two parking spaces. (Each LiDAR has a total cone angle of about 30 degrees).
- One high intensity green occupancy LED to signal parking availability. 0.2 sec flash every 2 seconds is the default signal rate and it is configurable.
- Sensor can be configured to determine at which distance a detection means that the parking space is occupied and at which distance a detection means that the sensor is obstructed between 4 inches (0.1 m) and 30 feet (10 m).
- Sensor takes measures and advertises the current state for both parking spaces every 2 minutes.
- The measuring interval is configurable and will affect the battery life. We provide a tool to calculate battery life for your desired configuration.

STATES

Available	At least 1 parking space is available and the occupancy LED flashes green.
Occupied	Both parking spaces are occupied and the occupancy LED stays OFF.
Unknown	Something is obstructing the sensor and the occupancy LED stays OFF.

INSTALLATION

- Sensor must be placed at the exact center of two parking spaces. (Each LiDAR should point in the direction of a parking space's center.)
- Sensor should be perpendicular with the floor (vertical installation) or fixed on the ceiling (horizontal installation).
- Sensor should be installed about 20 inches (0.5 m) from the floor or the end of the parking space if fixed on the ceiling (horizontal installation).

RADIO

Bluetooth™ version: 5.0 long range

Optional radios:

- LoRa
- Wirepas (In development)
- DigiMesh (In development)
- LTE CAT M (In development)

ENVIRONMENTAL

- Operating temperature range between -40 °F to 140 °F (-40 °C to +60 °C)
- Waterproof epoxy molded case

DIMENSIONS (L x W x H) (IN/CM)

6.5 in x 6 in x 3.5 in/16.5 cm x 15.25 cm x 7.75 cm

WALL INSTALLATION



CEILING INSTALLATION



GATEWAY - BLE

AT A GLANCE

- Powered using the Micro USB port (5V) or Power Over Ethernet (POE)
- Top color light strip to indicate its current state.
- BLE 5 to communicate with sensors
- WiFi and Ethernet to communicate with the cloud server
- For outside installation, the gateway should be installed in a plastic NEMA4 enclosure.
*Gateway status with LED strip won't be visible when in the enclosure.

STATES

Blue	Gateway is able to reach the cloud server.
Yellow	Gateway is not able to reach the cloud server
Red	Red Gateway encountered an error and stopped working.



DIMENSIONS (D x H) (IN/CM)

6 in x 1.25 in / 15 cm x 2.5 cm

INSTALLATION

- Gateway must be placed in sensor's range.
 - Sensors and Gateways have a theoretical range of 300 feet (90 m) in line of sight.
 - Since Sensors and Gateways are subject to interference from objects and other radio signals, it is recommended to place the gateway as near as possible from sensors.
 - ○ We recommend placing the Gateway within 80 feet (25 m) from the sensor.
*In case of a location with high interference (walls, metal structures), the Gateway should be place within 30 feet (10 m) of sensors.
 - Gateway must be powered using a micro USB cable plugged in a USB charger with an output of at least one (1) ampere or connected to a standard POE Power Over Ethernet source.
 - Gateway must be plugged in with an Ethernet cable to a network that has a DHCP server so that the Gateway can obtain an IP address. Also, the network must have an internet access to reach the cloud server.
- Make sure IP addresses are available on the DHCP server, so that the Gateway can get one.

REGULAR BEHAVIOR

- Gateway starts with a green light.
- When the Gateway reaches the cloud server, it will become blue.
- Otherwise, the Gateway becomes yellow and tries to get a response from the cloud server.
- When the cloud server is reached, the Gateway will become blue. It can take a couple of minutes.
- Otherwise, you can power cycle the Gateway.
- In "blue state", the Gateway scans to collect information from sensors.
- When the gateway receives BLE advertisements from the sensors, it sends the current states of the sensors to the cloud server.
- In case the connection with the server is lost, the Gateway will become yellow until connection is established again.
- Note that it can take up to 10 minutes for the Gateway to change from blue state to yellow state. During this time, the Gateway will continue to scan and try to send data to server.

STREET INSTALLATION

