

Parking Occupancy Detector Features



- ✓ **Quad-technology** detector incorporating **four complementary** sensing technologies
- ✓ **Zero-calibration** need: correctly detects out-of-the-box and always thereafter
- ✓ Based on LoRa radio, ADEC custom protocol stack minimizes latency for **up-to-date occupancy** information
- ✓ Nominal **7-year** battery life
- ✓ **Small size**, similar to a **hockey puck**, measuring only 28 mm x 80 mm (height to the edge x diameter)
- ✓ **IP 68** (continuous submersion)
- ✓ Suitable for **in-pavement** and **on-pavement** installations with mounting adapter POD-MA and POD-SMA
- ✓ **Snowplow resistant** (with or without POD-MA adapter)
- ✓ Built-in **NFC chip** with unique ID for easy commissioning using NFC-compatible Smart Phone and DET-Soft mobile

DET-Soft Access (from Windows and Android)

- ✓ Commission new installations from your **smartphone** or **tablet**
- ✓ Situational awareness
- ✓ **Map-view** and occupancy data logger
- ✓ Lat & Longitude (GPS data) stored with each parking detector



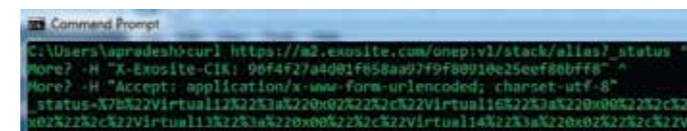
Internet Access

Browser Access



- ✓ Create new installations
- ✓ Manage existing installations
- ✓ Connection through **secure https**
- ✓ View occupancy status and occupancy history
- ✓ Check BS2 status and **view battery charge** history (installations with BS2-PS IoT gateway only)

Web-API



- ✓ Query occupancy status of **all PODs** assigned to a BS2-P using a **single command**
- ✓ From **any device** with Internet access and https protocol stack
- ✓ Connection through **secure https**
- ✓ Perfect for integration into mobile parking apps
- ✓ Easily **augment existing parking** management solution by expanding to outdoor / street-parking parking spaces

Additional Data Transfer Options

- ✓ Automatic forwarding of occupancy to customer-specified server via **UDP/IP** (User Datagram Protocol)
- ✓ Alternative data transmission via **e-mail**, file-transfer protocol (**FTP**) or short messaging service (**SMS**)



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Internet-of-Things (IoT) Parking Occupancy Management

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"Sometimes parking means just pulling over."

"Other times you could use some guidance."



ADEC Technologies

ADEC Technologies AG is a **globally leading manufacturer** from Switzerland of innovative traffic and parking detectors. Architects, engineers, installers and system-integrators worldwide turn to ADEC when looking for **reliable** and **proven** technology for their traffic and parking management solutions.



Parking Space Management

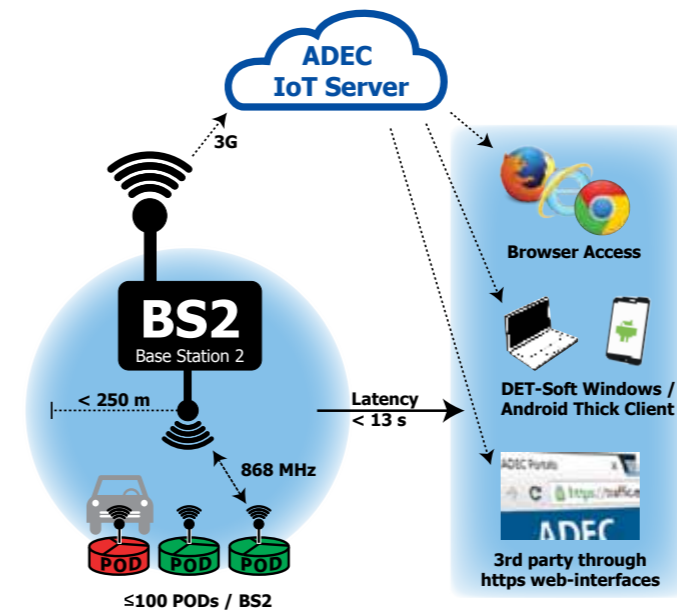
A revolution is unfolding pushed by new technologies that allow battery-operated devices to unload their data into the Internet-of-Things (IoT), enabling a range of new applications. Parking spaces will be equipped with **parking occupancy detectors** that, during years after their installation, report the occupancy to the Internet. Combined with their location, in-vehicle navigation systems and mobile Apps will guide drivers or self-driving vehicles to available parking spaces. Guidance, reservation and payment systems are tied together to form a coherent, end-to-end parking space management solution.



The Parking Occupancy Detector

It all begins with the detector. The Parking Occupancy Detector (POD) developed and sold by ADEC integrates **four** independent sensing technologies into a small, hockey-puck size device with nominal battery life of **seven years**. The quad-technology device eliminates all calibration needs and at all times ensures true occupancy detection. The built-in **LoRa radio** with an **optimized protocol stack** ensures **low-latency status updates**, even software upgrades from ADECs BS2 IoT gateway to the PODs. The solar-powered BS2 manages up to 100 PODs in a 250 m range.

From The Parking Space to The Cloud



3rd Party Access Through Standard JSON/REST Web-APIs

- ✓ Access up-to-date occupancy status information from any Internet-connected software through https
- ✓ For example ... to guide motorists to parking spaces
- ✓ ...to help law enforcement to locate vehicles of motorists that haven't paid for parking spaces
- ✓ ...to detect violations at electrical vehicle charging stations
- ✓ ...or simply to determine the usage pattern on any parking installation equipped with ADEC PODs



BS2 - IoT Gateway

- ✓ All-in-one, no cabling
- ✓ Solar-powered
- ✓ Battery-operated
- ✓ Autonomous operation for up to five days without sun
- ✓ Integrated charging circuitry with option for intermittent power via streetlight
- ✓ On-board 3G-modem
- ✓ 868 MHz LoRa radio to PODs with ADEC protocol stack
- ✓ Software updates over-the-air (OTA)
- ✓ Small form factor & light weight for minimal wind load 360 x 260 x 100 mm @ 3.5 kg (14.2" x 10.3" x 4" @ 7.7 lbs)
- ✓ Designed to be installed and operated with ADEC IoT Server (<https://traffic.exosite.com>), also supports data transmission via UDP or e-mail to 3rd party server

