

## Parking Occupancy Detector Features



- ✓ **Quad-technology** detector incorporating **four complementary** sensing technologies
- ✓ **Zero-calibration** need: correctly detects out-of-the-box and always thereafter
- ✓ Incorporates ADEC GFSK and LoRa radio to work with future LoRa access points via simple Over-the-Air (OTA) firmware upgrade (**LoRa-ready**)
- ✓ Guaranteed **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



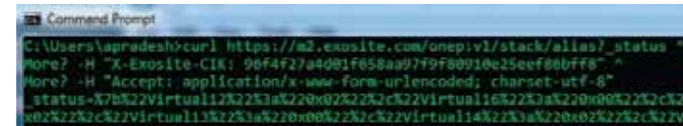
## Internet Access

### 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**)

# ADEC

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## Internet-of-Things (IoT) Parking Occupancy Management

# ADEC

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*"Sometimes parking means just pulling over."*

*"Other times you could use some guidance."*



### ADEC Technologies

ADEC Technologies AG is one of Switzerland's leading manufacturers of innovative **traffic** and **parking detectors**. Installers and integrators worldwide turn to ADEC when looking for reliable and proven technology for their traffic and parking management solutions.



### Parking Space Management

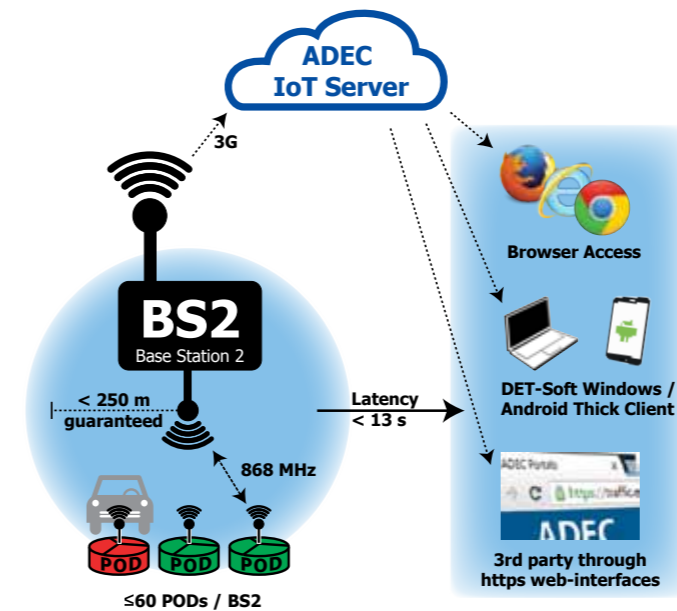
A revolution is unfolding pushed by new technologies that allow battery-operated devices to unload their data into the Internet-of-Things (IoT), enabling a range of new applications. Parking spaces will be equipped with **parking occupancy detectors** that, during years after their installation, report 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 **guaranteed** 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-ready** protocol stack guarantees compatibility and easy integration into LoRa networks once available. Installations that do not have LoRa coverage yet can easily be integrated using **ADECs BS2 IoT-gateway**. The solar-powered BS2 manages up to 60 PODs in a 500 m range.

### Migrate as Technology Evolves



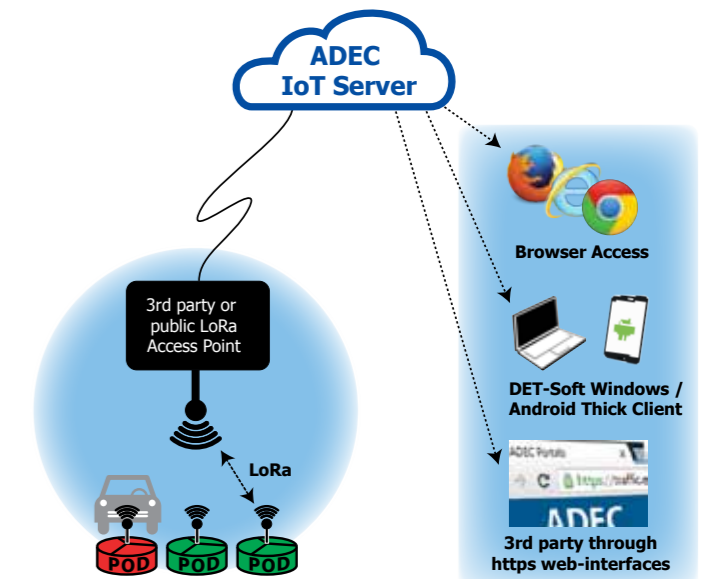
#### BS2 - IoT Gateway

- ✓ All-in-one, no cabling
- ✓ Solar-powered
- ✓ Battery-operated
- ✓ Autonomous operation for up to five days without sun
- ✓ Integrated charging circuitry with option to power via streetlight
- ✓ On-board 3G-modem
- ✓ Both 868 MHz GFSK and LoRa radio to PODs
- ✓ Software updates over-the-air (Ota)
- ✓ Small form factor & light weight for minimal wind load 265 x 220 x 90 mm @ 3.5 kg (10.5" x 8.7" x 3.4" @ 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



#### Migration to LoRa as easy as 1-2-3

- ✓ Take advantage of quad-technology parking occupancy space detector today with >99% detection accuracy
- ✓ Migrate to LoRa through simple POD over-the-air (Ota) firmware upgrade
- ✓ Deploy ADEC BS2-IoT gateway to installations where LoRa is not yet available



#### 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

