



# Subterranean Vehicle Detection Sensors



CivicSmart's **Subterranean Vehicle Detection Sensors** offer a reliable, low-cost solution for detecting vehicles. Our Vehicle Detection Sensors provide real-time data with 99.7% accuracy and extremely low latency, allowing parking program managers to detect vehicle occupancy in a specific space; to reveal parking patterns, trends, and high demand areas; and to guide enforcement officers directly to vehicles in violation.



## Extensive Capabilities

- + Highly accurate vehicle detection and parking space occupancy monitoring
- + Improved efficiency and productivity of parking program operations
- + Ability to track high-demand parking areas and monitor patterns
- + Provides reset options for metered spaces after a vehicle moves away from its designated space
- + Offers customized programming options such as providing motorists with courtesy parking and integration with wayfinding applications
- + Provides parking enforcement alerts for any infringement activity

## Seamless Integration

- + Compatible with all CivicSmart wireless products, including Liberty meter mechanisms and handheld citation issuance devices
- + When paired with our Liberty meter, vehicle detection sensors share communications and solar power to enhance efficiency and to optimize performance
- + Seamless integration with CivicSmart's Parking Enterprise Management System™ (PEMS) for comprehensive data management and analysis

## Extreme Durability

- + Weather, environment, and vandalism resistant
- + Efficient battery designed to last over 8 years
- + Available with standard or extended warranty



# CivicSmart

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## Subterranean Sensor Node Technical Specifications

### Operating Features

- ▶ Platform with low power 2.4 GHz ISM band operation
- ▶ 16 selectable channels in the 2405 MHz to 2480 MHz range
- ▶ Communications encryption AES 128-bit
- ▶ Programmable transmitter with max 22dBm output
- ▶ **Typical Sensitivity:** approx. -104 dBm
- ▶ **Spurious Emissions:** 1-12.75 GHz less than 500 microvolts per meter at 3m (FCC and ETSI limits)
- ▶ Radar sensor operating at center frequency 6300 MHz (Model N); 4500 MHz (Model E)
- ▶ Peak radiated emissions less than 0.2 nW/MHz
- ▶ True average field strength (2 second average) is around 7dBuV at 3m and undetectable
- ▶ Interference immunity from other emitters and sensors
- ▶ Compatible with tag with 2-way communications capability

### Operating Specifications

- ▶ **Main Power:** 3.6V, 24Ah Lithium Thionyl Chloride sealed unit
- ▶ **Battery Safe Operating Temperature:** up to 150°C
- ▶ **Standard Operating Temperature Range:** -20°C to 80°C
- ▶ Extended operating temperature ranges available

### Standards

- ▶ RoHS
- ▶ **US, Canada:** Compliant with FCC part 15
- ▶ **Europe:** Compliant with EN 300 440-1, EN 302 065-2
- ▶ **China:** Compliant with China UWM MIIT Document No. (2008) 354
- ▶ ASTM B117, ISO 9227 Salt Spray
- ▶ ASTM D1735 Humidity Testing
- ▶ IP65 environmental rating
- ▶ GMW 14872 Cyclic Corrosion

### Mechanical Dimensions

- ▶ **Node:** 138 mm x 80 mm
- ▶ **Gross Weight:** 900 g



## Sensor Gateway Technical Specifications

### Operating Features

- ▶ Platform with low power 2.4 GHz ISM band operation
- ▶ 16 selectable channels in the 2405 MHz to 2480 MHz range
- ▶ Advanced encryption/decryption AES 128-bit
- ▶ Programmable transmitter with max 22dBm output
- ▶ **Typical Sensitivity:** approx. -96 dBm
- ▶ **Spurious Emissions:** 1-12.75 GHz less than 500 microvolts per meter at 3m (FCC and ETSI limits)
- ▶ Proprietary low latency architecture

### Operating Specifications

- ▶ **Main Power:** 8.2V rechargeable battery pack
- ▶ **External Power:** 12V, 10 Watt Solar Panel
- ▶ **Average Battery Consumption:** less than 70mA
- ▶ Penta-band PGRS/UMTS/HSDPA radio operating in the 850/900/1800/1900/2100 MHz bands
- ▶ **Output Power, Class 4:** 2W, 33dBm @ GSM 1800/1900
- ▶ **Output Power, Class 1:** 1W, 30dBm @ GSM 1800/1900
- ▶ **Sensitivity:** 107 dBm @ GSM 850/900 MHz
- ▶ **Operating Temperature Range:** -20°C to 85°C
- ▶ 200 kmph wind resistance

### Mechanical Dimensions

- ▶ **Enclosure:** 110 mm x 75 mm x 75 mm
- ▶ **Gross Weight:** 6 kg (including mount)



### Standards

- ▶ RoHS
- ▶ Compatible with FCC Part 15
- ▶ Compatible with EN 300 440-1
- ▶ IP54 environmental rating
- ▶ Compatible with ASTM B117, ISO 9227 Salt Spray
- ▶ Compatible with ASTM D1735 Humidity Testing

