

**Overview**

Intelight’s DSRC Radio provides the vital communications infrastructure between connected vehicles and the traffic signal controller. Coupled with Intelight’s ATC connected vehicle solutions, the DSRC radio allows connected vehicles to communicate directly with an Intelight ATC which hosts the SAEJ2735 protocol. Example applications include Collision Avoidance, Transit Signal Priority, First Responder Signal Preemption, Citywide CAD/AVL communication, and support for SAE J2735 Vehicle Services. Our V2I radio can be ordered in the two following configurations.



**Highlights**

- 802.11p compliant for V2I or V2V radio
- 5.85 – 5.925 GHz
- SW configurable between RSU and OBU
- GPS sync & GPS failover
- QOS, fast switching
- Seamless handoffs
- IPv4 & IPv6
- IP67
- Upgradeable to 802.11N turbo mode (requires a 2<sup>nd</sup> antenna)

**Model Options**

Model	V2I or V2V	IP67 Outdoor Rated DSRC 802.11p Compliant Radio	GPS Receiver / Antenna with Cables	5.9GHz 11dBi Bi-Directional Antenna	Mounting Brackets	Power Supply
MP8011-OBU	V2I	✓	w/magnetic mount	✓	✓	✓
MP8011-RSU	Both	✓	✓	✓	✓	✓

## Model Options

- 8011RSU -Roadside station unit; 902.11P Wave; V2V/V2I
- 8011OBU -Onboard unit; 802.11P Wave; V2I

## Size and Weight

- Packaged: 11.81x12.83x5.81 in, 7.93lbs (3.6kg)
- Unpackaged: 5.02x8.68x2.85 in, 2.75lbs (1.3kg)

## Interfaces

- Wired Ethernet
  - One auto MDI-X RJ45 10/100/1000 Mbps
  - One RS 232 serial input for GPS and 12V power supply
- Wireless: 2N female connectors

## Radio and TX Specs

- MIMO: 2x2
- Modulation: BPSK, QPSK, QAM16, QAM64
- Frequencies:
  - 5.850 to 5.925 GHz DSRC
  - 5.85 to 5.925 GHz 802.11N Wi-Fi
- Channel size 20s MHz, 10 MHz
- Data rates:
  - 3-27 Mbps for 802.11p mode (BPSK, QPSK, 16-QAM and 64-QAM)
  - 6.4-150 Mbps for 802.11n mode (MCS 0 to 15)
- TX power: up to 23 dBm (two Tx chain)
- TX power control: 0-20 dB, in 1dB steps
- RX sensitivity: (PER=10%) -70 to -98 dBm

## Antenna

- External N female connectors

## Management

- Local: RS 232 serial (RJ11 to DB-9 dongle provided)
- Remote: HTTPs and SNMPv2

## Security

- Encryption AES 128 bits
- Authentication
  - DSRC: 1609.2 certificate based authentication
  - 902.11N: WPA2, IEEE 902.1x, MAC

## Network

- IP Stack IPv4 (NAT64) and IPv6
- Throughput up to 150 Mbps, DSRC up to 27 Mbps
- Gateway features DHCP: client and server, QoS
- DSRC wireless:
  - 802.11N based supporting antenna diversity for 802.11p with .11N turbo mode for high throughput applications; high speed roaming and controlled access OBU communication; 802.11p 2010, 1609.2 2013 security services, 1609.3 2010/cor1-2012 networking services, 1609.4-2012 multi-channel operation, SAE J2735 (SPAT MAP, TIM)

## Power Consumption

- 5 watts typical (19 watts max)

## Environmental Specs

- Operating temperature: -40° to 60°C (-40° to 140°F)
- Storage temperature: -55° to 80°C (-67° to 176°F)
- Humidity: IP rating (100% relative humidity – IP67)
- Wind loading: 200 km/h (125 mph)

## Certifications

- UL 60950, CAN/CSA-C22.2 No. 60950, IEC 60950, EN 60950 (part -1 and -22), IC, FCC part 90m part 95L

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