Wireless Sensors for Traffic Detection

AccuSense MicroRadar

What, exactly, is AccuSense MicroRadar?

The AccuSense MicroRadar is a compact in-ground radar sensor. MicroRadar sensors, installed very close to the roadway surfaces, detect trains, cars, trucks, and bicycles. AccuSense MicroRadar sensors are also capable of detecting and distinguishing objects in motion from stationary objects, as well as large objects from small objects. AccuSense MicroRadar sensors have a programmable detection range.

Why do agencies use AccuSense?

As the complexities of traffic management increase, ITS strategies are valuing more and more the multi-tasking capabilities of intelligent detection sensors to not only accurately detect traffic at the stop bar to trigger a signal change, but to count, classify, track, and even provide advanced detection for traffic adaptive systems and dilemma zone safety applications. Today's multi-modal intersections and roadways require the multi-modal capabilities of leading-edge detection sensors to provide capabilities such as bicycle detection and differentiation.

How does AccuSense benefit the driving public?

Econolite's vehicle detection solutions continue to play a critical role in helping ITS deliver on the promise of enhanced public safety, reduced congestion, shorter travel times, lowered environmental impacts, and increased cost savings for all roadway users.

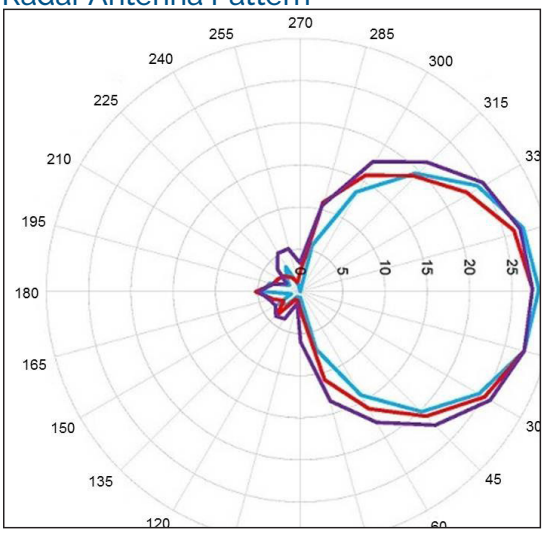
AccuSense MicroRadar Datasheet

Econolite Video, Radar, & In-Ground Detection

Radio Specifications

Over-the-air protocol	Sensys Networks NanoPower (SNP) protocol (TDMA)
Physical layer protocol	IEEE 802.15.4 PHY
Modulation	Direct Sequence Spread Spectrum Offset Quadrature Phase-Shift Keying (DSSS O-QPSK)
Transmit/receive bit rate	250 kbps
Frequency band	2400 to 2483.5 MHz (ISM unlicensed band)
Frequency channels	16
Channel bandwidth	2 MHz
Antenna type	Ceramic patch antenna (mounted below top surface of sensor)
Antenna field of view	±60° (azimuth & elevation)
Nominal output power	+3 dBm
Spurious emissions	30 - 1000 MHz: < -56 dBm 1 - 12.75 GHz: < -44 dBm 1.8 - 1.9 GHz: < -56 dBm 5.15 - 5.3 GHz: < -51 dBm
Typical receive sensitivity	-101 dBm

Radar Antenna Pattern



Compliance

Safety	2006/95/EC
EMC	• FCC: This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation. • 2004/108/EC

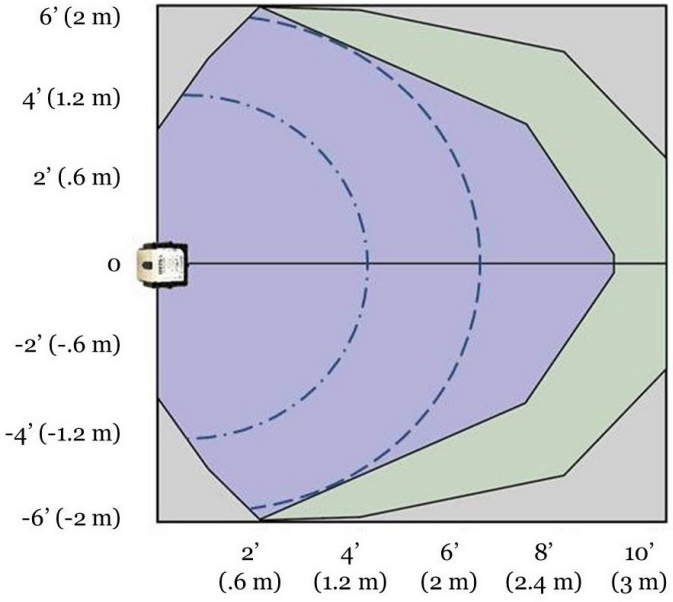
Radar Specifications

Frequency	6.3 GHz
Bandwidth	>500 MHz
Radiated power	Within FCC class B limits
Maximum range	4' (1.2 m) to 10' (3 m) (selectable)
Calibration	Self calibrating
Sample rate	1/2, 1, 2, 4, and 8Hz (selectable)

Power, Physical, & Environment

Power supply	• Non-replaceable primary Li-SOCl2 3.6V battery pack • 7.2 Ah (nominal capacity)
Dimensions	2.9" x 2.9" x 2.3" (7.4 cm x 7.4 cm x 5.8 cm)
Weight	0.6 pounds / 0.3 kg
Environment	• Designed for in-pavement mounting • Performance diminishes in standing water and in slushy conditions • NEMA Type 6P enclosure • IP67 ingress protection
Operating temp	-40°F to 176° / -40°C to +85°C

In-Road Detection Zone



Adjustable radar detection zone. The purple area depicts the sensor detection zone for all vehicles (including bicycles). The green area depicts the sensor detection zone for large vehicles. The 4' (1.2 m) and 6' (2 m) arcs represent detection distance settings.

ECONOLITE

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