

M100 Magnetometer Sensor

Advanced Magnetometer-Based Vehicle Detection



Functional Specifications

Detection Technique	3-axis magnetic field sensing
Sampling Rate	128 Hz
Programmable Vehicle Detection Parameters (Mode B only)	• Z-axis detect threshold • Z-axis undetect threshold • X-axis undetect threshold • Auto-recalibration timeout (secs)
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	2405 to 2480 MHz (ISM unlicensed band)
Frequency Channels	16
Channel Bandwidth	2 MHz
Antenna Type	Microstrip patch antenna (mounted below top surface of sensor)

Antenna Field-of-view	+60° (Azimuth and elevation)
Nominal output power	+3 dBm
Spurious Emissions	• 30 – 1000 MHz: < -36 dBm • 1 – 12.75 GHz: < -30 dBm • 1.8 – 1.9 GHz: < -47 dBm • 5.15 – 5.3 GHz: < -47 dBm
Typical Receive Sensitivity	-101 dBm (PER = 1%)
Saturation (Max input levels)	> 10 dBm

Power, Physical & Environment

Power Supply	Non-replaceable primary Li-SOC1 3.6v battery pack
Dimensions	2.9"x2.9"x2.2"
Weight	0.53 lbs/0.238 Kg
Environmental	Designed for in-ground mounting IP68 ingress protection NEMA Type 6P enclosure
Operating Temperature	-40°F to 176°F/-40°C to +85°C

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Sensor Modes

Mode	Application	Description
B (Event)	Count stations;	
E (Idle)	Status reporting	
STOPBAR-# (presence detection)	Stop bar detection; Ramp management	
• 16 different stop bar detection modes can be selected • Recommended stop bar detection modes for specific applications		
	STOPBAR-0	Bicycles/ Scooters
	STOPBAR-2	Motorcycles
	STOPBAR-5	Passenger Vehicles (normal recalibration)
	STOPBAR-7	Passenger Vehicles (fast recalibration)

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. Changes or modifications not expressly approved by the party responsible for compliance could void the users authority to operate the equipment.