

GPR14 General Purpose Radar

Sixteen Zones, Four Vital Outputs, 16,000ft² Detection Footprint



- Detects vehicles, trains, motorcycles, bicycles at crossings
- Train detection in diamond crossing dead sections
- Switch fouling protection in yard applications
- Detects moving and stopped vehicles, all-weather performance
- Long-life, non-embedded, superior alternative to presence detection loops
- Multiple, user-configured detection zones, powered vital outputs and health circuits

One Radar
16,000 ft² Detection Footprint
Sixteen User-Configurable Zones
Four Vital Outputs

A Non-Embedded, Superior Alternative to Buried Presence Detection Loops
Lower Cost - Longer Life - Proven, All-Weather Performance - Vital Outputs

Introducing the Island Radar General Purpose Radar for Railroad Applications

The Island Radar provides reliable vehicle and train detection without the short life, maintenance problems, and train delay consequences of buried loop sensors. It uses SmartSensor™ Rail radar technology from Wavetronix along with AREMA-compliant controller from the Island Radar Company to detect any type or size of passenger vehicle or train.



Train Detection at Diamond Crossings

As an alternative to ground-level presence detection loops, the GPR14 and Smart Sensor-Rail radar can detect train occupancy in dead sections of diamond crossing dead sections, adding a higher degree of protection than trap circuits alone.

Train Detection for Switch Fouling Protection

In classification yards and general switch applications, the system can indicate when a powered switch is clear and free to change position without fouling.

Train Detection at Highway-Rail Grade Crossings

With its large detection footprint (quarter-circle shaped, 90° by 140 ft) and multiple zone configuration options, the SmartSensor-Rail radar can detect trains moving through crossings for end-of-train detection and communicating train presence to emergency vehicle dispatch centers and other ITS applications.

Vehicle, Motorcycle, and Bicycle Detection at Crossings

Radar sensors can provide detection of large and small objects and vehicles in a variety of applications. Multiple radar sensors may be used (up to eight), permitting redundancy and vital circuiting. For four quadrant gate exit gate control and blocked crossing detection, a dual radar solution is recommended using the VDR24 Dual Radar Controller with its Intelligent Correspondence Verification features.

Established Technology - All Weather Performance

Wavetronix is the world leader in radar-based vehicle detection for traffic intersection control and intelligent transportation applications. Proven in thousands of highway and intersection applications worldwide, the Wavetronix technology is unaffected by conditions that interfere with video detection systems, including rain, snow, dust and fog. Lanes and individual detection zones can be set up in any shape or size, on a configuration screen that shows detected vehicle icons traversing the island in real time.

Controller Interfaces and Internal Self-Check Processes

The Island Radar solution features isolated optical and relay interface options for any make, model, or vintage of crossing controller or signalling device. Vital Outputs and multiple Health Circuit outputs are powered and supervised. Electrical surge protection and isolation meet or exceed the requirements of IEC 61000-4-5 class 4 and AREMA 11.3.3 Class C, respectively.



SmartSensor™-Rail Radar Sensor

Environmental

- Operating frequency: 24.0-24.5GHz (K Band)
- Operating temperature: -40°C to 74°C (-40°F to 165°F), 0 to 95% RH (non-condensing)
- Storage temperature: -49°F to 185°F (-45°C to +85°C)

Physical

- Weight: 4.2 lbs (1.9 kg)
- Physical dimensions: 13.2 in × 10.6 in × 3.3 in (33.5 cm × 26.9 cm × 8.4 cm)
- Mounting method: 18 to 22 ft height (5.5 m to 6.7 m), on approved mounting bracket, unobstructed by any foreground structures
- Resistant to corrosion, fungus, moisture deterioration, and ultraviolet rays
- Lexan EXL polycarbonate enclosure, outdoor weatherability: UL 746C
- NEMA 250 compliance:
 - Watertight per NEMA 250
 - External icing (clause 5.6), hose down (clause 5.7)
 - 4X corrosion protection (clause 5.10)
 - Gasket (clause 5.14)
 - Withstands 5 ft (1.5 m) drop
 - MIL-C-26482 Connector
 - Rotational backplate for 360° of roll

Regulatory and Certification Testing, Other

- RFI: FCC part 15.249
- MTBF: Prediction and temperature-based margin analysis per MIL-HDBK-217F, FN2, >10 Years
- Surge Protection: per IEC 61000-4-5 class 4
- Two-year warranty against material and workmanship defects
- Full Extended Warranty options up to five years

GPR14 Single Radar Controller

Electrical

- Input Voltage: 9-30VDC AREMA-Compliant Power Supply (Class C Equipment)
- Power consumption: 30W, includes radar sensor power distribution
- Surge protected RS-485 communication ports to radar sensor

Environmental

- Operating temperature: -40°F to +158°F (-40°C to +70°C), 0-95% RH, non-condensing per AREMA 11.5.1 Class C
- Storage temperature: -49°F to 185°F (-45°C to +85°C)
- Vibration: per AREMA 11.15.1
- EMI: per AREMA 11.15.1
- Isolation, Protection, and Dielectric Breakdown: per AREMA 11.3.3

Physical

- Weight: 1.5 lbs (0.7 kg)
- Physical dimensions: 5 in × 8 in × 3 in (15.2 cm × 20.3 cm × 7.6 cm), inclusive of mounting flanges
- Mounting method: flange mounting, four screws, vertically on a wood or other non-conductive back panel surface
- Recommended mounting clearance: 5 in (12.7 cm) minimum on each side, 18 in (45.7 cm) minimum horizontal

Regulatory and Certification Testing, Other

- MTBF: Prediction and temperature-based margin analysis per MIL-HDBK-217F, FN2, >10 Years
- RFI: FCC part 15C
- Surge Protection: per IEC 61000-4-5 class 4
- Two-year warranty against material and workmanship defects
- Full Extended Warranty options up to five years



Standard Components, GPR14 Radar Detection System*		
Part Name	Part Number	Typical Quantity
SmartSensor™- Rail Radar Sensor	RAD-0500-00	1
GPR14 Single Radar Controller	RAD-0200-00	1
Extended Mounting Bracket, 48 Inch	MNT-0104-00	1
Mast Riser Cable, 40 Feet	CAB-0103-00	1
Mast Base Junction Box	ENC-0101-00	1
Home Run Cable	CAB-0101-00	Up to 600 Feet per Sensor

*Typical components are shown, numerous other installation and mounting hardware configurations are available



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