

## RTMS Echo + Camera



The RTMS Echo plus camera is a technologically advanced radar sensor with a High-Definition camera that empowers smart decisions. The RTMS Echo radar detects and measures traffic while providing the ability to visually verify the roadway conditions using the camera. It is all-weather accurate and virtually maintenance-free.

The RTMS Echo is a side fire radar mounted on the roadside. Simultaneously, the sensor provides per vehicle data including volume, occupancy, speed and classification information in up to 12 detection zones. The installation of RTMS has never been easier with built-in aiming guidance, auto configuration of the sensor, and wireless configuration via mobile device, tablet, or laptop. The data collected by the RTMS Echo is highly accurate and can be formatted to fit the needs of your organization or agency's objectives.

The RTMS technology provides meaningful and reliable data that maximizes the full potential of existing infrastructure and optimizes the safety and efficiency of every city.



Powerful IoT-ready device



Radar designed for traffic data collection



Secure wireless configuration



Visual verification and surveillance



## RTMS Echo

### Average Coverage (Radar)

- Effective Elevation Angle: Up to 78 degrees
- Range: 0 to 76 m (0 to 250 ft)
- Effective Azimuth Angle: As narrow as 5 degrees

### Measurement Resolution

- Detection zones: Configurable up to 12 detection zones
- Zone width: 1.8 to 5.5 m (6 to 18 ft)
- Radar transceiver: Dual receive antennas using speed trap algorithms for high accuracy per-vehicle speed and direction detection

### Frequency Bands

- K band, operates at high resolution in the 24 GHz band

### Electrical

- Voltage: 12-24 Volts DC
- Power: 7.3 Watts
- Passive Power over Ethernet (PoE)
- Transient resistance: Tested per NEMA 2.8.1.3

### Interface

- 10/100 Base T-Ethernet
- Wired per TIA568B
- WiFi access point for wireless configuration with mobile device

### Data Storage

- 1,000,000 individual vehicle records and 10,000 interval records
- All device data is retained in nonvolatile memory

### Data Retrieval

- Per-vehicle records:** Speed, Length, Vehicle direction
- Supports retrieval of interval data using Sx-300 protocol and Wavetronix protocol

### Maintainability

- Ultra reliable: MTBF (mean time between failures) designed for 90,000 hours (10 years)
- System event log and no scheduled maintenance

### Mechanical

Universal 3 axes mounting bracket mountable on any structure.

- Size: 32 x 18 x 7 cm (12.5 x 7.25 x 2.5 in)
- Effective projected area: 100 in<sup>2</sup>
- Weight: 1.5 kg (4.5 lbs) with bracket

### Environmental Conditions

- Temperature range: -40° to +74°C (-40° to 165°F)
- Water-tight housing: Tested per IP67 standard

### Regulatory

- FCC Title 47, Part 15
- Canadian CSA C108.0-M1983

### Warranty

- Three-year warranty

## Camera

### Power

- POE (using IEEE 802.3af Mode A)
- Approximately 3.8 W (Class 2 device)

### Camera

- Image sensor: 1/3 type MOS image sensor
- Color:
  - 0.1 lx (F2.2, Maximum shutter : Off (1/30s), AGC : High)
  - 0.007 lx (F2.2, Maximum shutter : Max. 16/30s, AGC : High)
- Black and White:
  - 0.06 lx (F2.2, Maximum shutter : Off (1/30s), AGC : High)
  - 0.004 lx (F2.2, Maximum shutter : Max. 16/30s, AGC : High)
- Wide dynamic range
- Fog compensation
- Configurable camera label: up to 20 alphanumeric characters

### Image Resolution

- 2 mega pixel [16:9]
- H.264/JPEG: 1920 x 1080/1280 x 720/640 x 360/320 x 180/160 x 90

### Lens

#### Field of View:

- 16:9 mode: Horizontal: 109° Vertical: 73°
- Adjustment of video: Brightness, contrast, saturation, sharpness, and image quality via web browser

### Network

- Interface: 10 Base-T / 100 Base-TX, M12 connector (female)
- H.264 / MPEG-4:
  - Transmission mode: Constant bit rate / variable bit rate
  - Frame rate: 1 - 30 fps
  - Bit rate: minimum: 64 kbps maximum: 40,960 kbps
- Supported protocols: IPv4: TCP/IP, UDP/IP, HTTP, HTTPS, RTSP, RTP, RTCP

### Mechanical

- Dimensions: 100 mm x 80 mm x 161 mm (3.94 x 3.13 x 6.34 in)
- Weight: Approximately 750 g (1.65 lbs)
- Camera housing: Aluminum die cast
- Dome cover: Polycarbonate resin, clear (with hard coating)
- Camera bracket: Aluminum powder coated, simple design

### Environmental

- Temperature range: -40° to +60°C (-40° to 140°F)
- Tested to comply with thermal requirements of NEMA TS2-2016
- Operating humidity: 0-95% (non-condensing) complies with NEMA TS-2016
- Water and dust resistance: IP66 (IEC60529), IP6K9K, Type 4X (UL50), NEMA 4X compliant
- Vibration resonance: Tested per NEMA TS2-2016 2.2.8.3
- Vibration endurance: Tested per NEMA TS2-2016 2.2.8.4
- Shock: Tested per NEMA TS2-2016 2.2.9.2

### Regulatory

- FCC Part 15 Class A, ICES003 Class A, En55022 Class B, En55024

### Warranty

- Three-year warranty