

Wavetronix SmartSensor Advance Extended Range Detector

Wavetronix

The SmartSensor Advance Extended Range is a versatile device capable of detecting vehicles up to 275 m away and designed to optimize traffic flow at intersections as well as road user safety. It can track 25 vehicles simultaneously and calculates each vehicle's speed and ETA at the stop line for traffic controllers. Furthermore, the detector tracks heavy vehicles differently than it does passenger vehicles to take into account their reduced braking capability and improve road safety.



Description

This state-of-the-art detector is easy to install above ground to avoid hindering traffic and contributes to reducing the risks of hazardous material spills and accidents involving trucks, thereby reducing the number of road fatalities. It also contributes to reducing pollutant emissions and improving traffic flow by reducing heavy vehicle start-up delays.

The SmartSensorTM Advance Extended Range is packed with several advanced functions. Its innovative and patented SafeArrivalTM technology provides improved detection of heavy vehicles up to 275 m (900') away and of other motor vehicles up to 185 m (600') away, i.e., well in advance of inductive loops and most video systems. Furthermore, the detector calculates the dynamic density (instant lane efficiency) to detect waiting lines and adapt the duration of movements.

The SmartSensorTM Advance Extended Range features dual half-duplex RS-485 ports for dedicated serial detection communications as well as for traffic configuration, verification and display. Both ports may be used to upgrade the firmware. The user has the possibility of setting the baud rates to anywhere between 9,600 and 115,200 bps.

A user-friendly interface displays traffic representation as well as configured and activated alerts. It also provides access to a vehicle tracking log file.

The SmartSensorTM Advance Extended Range can operate in uninterrupted mode for 10 years without recalibration, battery replacement or cleaning. It provides constant performance levels regardless of weather conditions: rain (up to 5 cm (2'')/hr), freezing rain, snow, wind, dust, fog or temperature or ambient light variations.

The SmartSensor™ Advance Extended Range detector comes with a two-year parts and labour warranty. (Refer to the Wavetronix warranty card for further information.)

Specifications

Standard characteristics

- Latched channel outputs controlled by alerts and timer
- Delay and extend settings used for channel outputs
- Priority levels (based upon discovery range for high-profile vehicles)
- Pulse channel outputs for intersection arrival time information
- Logic filters for zone output and combinational logic applied to zone outputs for generating alerts
- Onboard surge protection

Performance

- Detection zone: 15.2 to 275 m (50 to 900')
- Number of vehicles detected simultaneously: 25
- Detection accuracy: large vehicles = 98%; other vehicles = 95%
- Range accuracy: 3 m (10') for 90% of measurements
- Speed accuracy: 8 km/h (5 mph) for 90% of measurements
- ETA accuracy: 1 second for 85% of measurements
- Percentage of vehicles detected before 137 m (450'): 90% of motor vehicles
- Percentage of vehicles detected before 213 m (700'): 90% of heavy trucks, buses and other large vehicles

Radar characteristics

- Operating frequency: 10.5-10.55 GHz (X-band)
- Bandwidth: 45 MHz
- No manual circuitry tuning
- Digital generation of modulated signals
- No temperature-based correction necessary
- Bandwidth stable within 1%
- Printed circuit board antennas
- Antenna 6 dB beam width:
 - Vertical (two-way): 65°
 - Horizontal (two-way): 10.5°
- Two-way sidelobes: -40 dB
- Unwindowed resolution: 3.4 m (11')
- RF channels: 8

Configuration

- Automatic and manual configuration of detection sensitivity in 2.29-m (7.5') increments
- Channel outputs: 8
 - Alerts per channel: 4 (32 total)
 - Zones per alert: 4 (128 total)
- Priority channels: 3
 - Two priority alert levels: level 1 = high priority; level 2 = normal priority
 - Discovery range threshold from 30.5 to 275 m (100 to 900')
 - Queue clearance alert

Compliance and general characteristics

- Outdoor weatherable: UL746C
- NEMA 250 compliant for:
 - Watertightness
 - External icing
 - Water infiltration
 - 4X corrosion protection
 - Gasket
- Withstands a 1.5 m (5') drop
- Successfully tested under NEMA TS2-1998
- Resistant to corrosion, mould, moisture deterioration and ultraviolet rays
- Lexan polycarbonate enclosure
- MIL-C-26482 connector
- 360° rotational backplate

Technical characteristics

- Supply voltage: 9-28 VDC
- Power consumption: 3.2 W at 12 VDC
- Operating temperature range: -40 to +74°C (-40 to +165°F)
- Maximum operating relative humidity: 95%
- Dimensions: 33.5 x 26.9 x 9.7 cm (13.2 x 10.6 x 3.8")
- Weight: 1.7 kg (3.8 lb)

For more information: 1 800 363-5913

Created on 14.12.2025 at 20:31:12 EST