

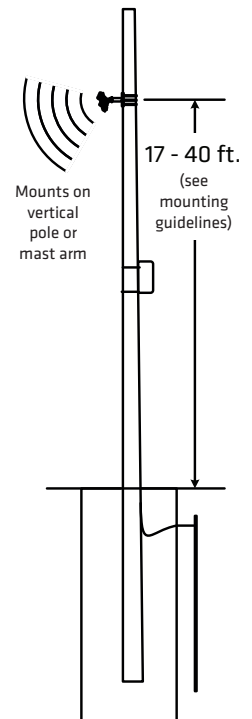
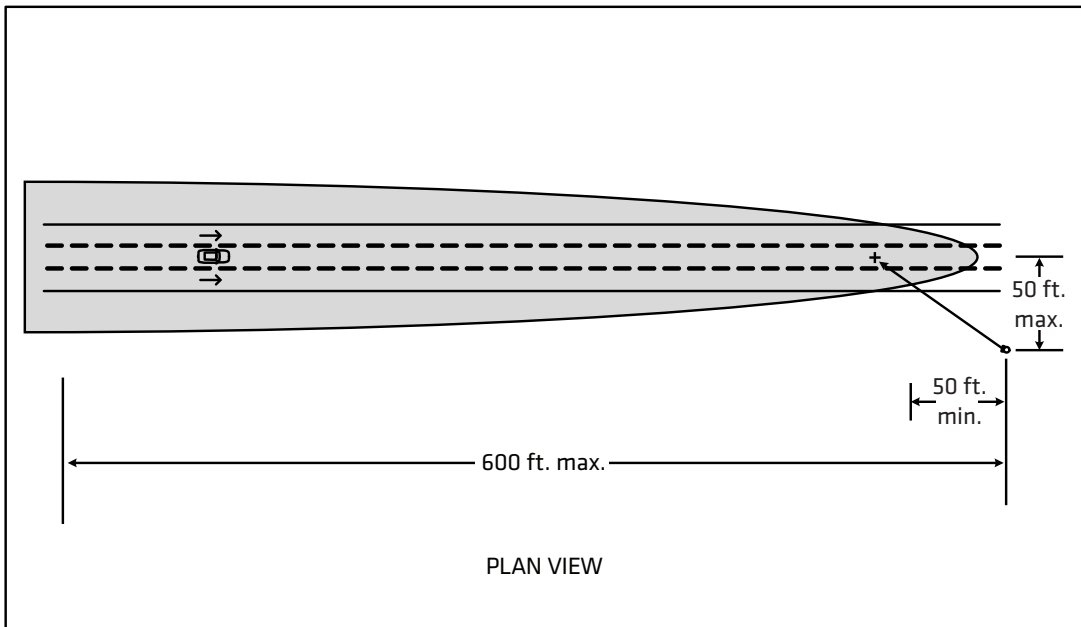


SmartSensor Advance

The Wavetronix SmartSensor™ Advance bridges the gap between safety and efficiency with one-of-a-kind SafeArrival™ technology. SafeArrival allows custom management of intersections based upon the estimated time of arrival (ETA), speed and range of vehicles approaching the stop bar.

Features

- Advance detection at signalized intersections
- Patented Digital Wave Radar™
- Easy integration with the SmartSensor Matrix into the same intersection preassembled backplate
- Latched channel functionality for queue length detection
- Cost savings due to 600-ft. range of detection
- Auto-configuration software for PC and Pocket PC
- Breakthrough SafeArrival technology for safe and efficient dilemma zone protection
- Easy integration with Wavetronix Click products
- Non-intrusive, aboveground position makes sensor easy to install
- Consistent all-weather, all-condition performance
- Low-maintenance design





Technical Specifications

Measured Quantities

- Per-vehicle range, speed, stop-bar ETA
- Dynamic density (a measure of instantaneous roadway efficiency)
- Number of simultaneous vehicle detections: 25
- Logic filters for zone output
- Combinational logic applied to zone outputs for alert output
- Channel output from multiple alerts
- Latched channel output controlled by alerts and timer
- Delay and extend settings used for channel outputs
- Number of channels: 8
- Detection data available via serial communications
- Pulse channel outputs for intersection arrival-time information

Detectable Area

- Maximum mounting distance from center of lanes: 50 ft. (15.2 m)
- Maximum mounting height: 40 ft. (12.2 m)
- Detection area: 50 to 600 ft. (15.2 m to 182.8 m)
- Percentage of vehicles detected before 400 ft. (121.9 m): large vehicles 95%; all motor vehicles 90%

Performance

- Detection accuracy: large vehicles 98%; all motor vehicles 95%
- Range accuracy: ±10 ft. (3 m) for 90% of measurements
- Speed accuracy: ±5 mph (8 kph) for 90% of measurements
- ETA accuracy: ±1 sec. for 85% of measurements

Performance Maintenance

- No cleaning or adjustment necessary
- No battery replacement necessary
- Mean time between failures: 10 years (estimated based on manufacturing techniques)

Physical Properties

- Weight: 3.8 lbs. (1.7 kg)
- Physical dimensions: 13.2 in. × 10.6 in. × 3.8 in. (33.5 cm x 26.9 cm x 9.7 cm)
- Resistant to corrosion, fungus, moisture deterioration and ultraviolet rays
- Enclosure: Lexan polycarbonate
- Outdoor weatherable: UL 746C
- Watertight by NEMA 250 standard
- NEMA 250 compliant for:
 - 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

Ordering Information

SmartSensor Advance
SS-200V

Retrofitted SmartSensor Advance
SS-200-001

ACCESSORIES

SS-KIT – Wavetronix install kit

CLK-112/114 – Click 112/114 rack cards

SS-704-xxx/705 – SmartSensor 6-conductor cable

SS-708-xxx/707 – SmartSensor 8-conductor cable (for retrofitted sensor)

SS-611 – SmartSensor mount

SS-B01-0003/0005/0008 – Intersection preassembled backplate – AC

SS-B01-0004/0006 – Intersection preassembled backplate – DC

SS-B02-0002/0003 – Intersection preassembled 19-inch rack

SS-710 – Sensor cable junction box

Wavetronix

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- Connector: MIL-C-26482
- Rotational backplate for 360° of roll

Electrical

- Power consumption: 3.2 W @ 12 VDC
- Supply voltage: 9–28 VDC
- Onboard surge protection



Communication Ports

- Two half-duplex RS-485 com ports support:
 - Dedicated detection comms
 - Configuration, verification or traffic display without disrupting detection comms
- Firmware upgradability over any com port
- User configurable:
 - Baud rate
 - Response delay
 - Contact closure data output frequency
- Supported baud rates: 9600, 19200, 38400, 57600 and 115200 bps
- Contact closure data output frequency:
 - Minimum: 50 ms
 - Default: 130 ms
- Contact closure data latency (varies with baud rate and output frequency):
 - Minimum: 55 ms (this is achieved using 57600 bps baud rate and 50 ms output frequency)
 - Default: 142 ms (this is achieved using 9600 bps baud rate and 130 ms output frequency)

Radar Design

- Operating frequency: 10.5–10.55 GHz (X-band)
- No manual tuning to circuitry
- Transmit modulated signals generated digitally
- No temperature-based compensation necessary
- Bandwidth stable within 1%
- Printed circuit board antennas
- Antenna vertical 6 dB beam width (two-way pattern): 65°
- Antenna horizontal 6 dB beam width (two-way pattern): 10.5°
- Antenna two-way sidelobes -40 dB
- Transmit bandwidth: 45 MHz
- Un-windowed resolution: 11 ft. (3.4 m)
- RF channels: 8

Configuration

- Automatic and manual configuration of detection sensitivity in 5-ft. (1.5-m) increments
- Channel outputs: 8
 - Alerts per channel: 4 (32 total)
 - Zones per alert: 4 (128 total)
- Zone size increment: 5 ft. (1.5 m)
- Maximum detection zone size: 550 ft. (167.6 m)
- High speed and low speed detection filters
- Speed filter increment: 1 mph (1.6 kph)
- Upper and lower ETA filters
- ETA filter increment: 0.1 seconds
- Upper and lower count filters
- Count filter increment: 1

- Graphical user interface with traffic representation
- Display of configured alerts and their actuation
- Vehicle track file logging
- Supported operating systems:
 - Windows® Mobile (Socket Mobile 650-M)
 - Windows XP
 - Windows Vista
 - Windows 7
- Software supported functionality:
 - Auto-find baud rate
 - Auto-find serial port
 - TCP/IP connectivity
 - Virtual sensor connections
 - Sensor configuration backup and restore

Operating Conditions

- Accurate performance in:
 - Rain up to 2 in. (5.08 cm) per hour
 - Freezing rain
 - Snow
 - Wind
 - Dust
 - Fog
 - Changing temperature
 - Changing lighting (even direct light on sensor at dawn and dusk)
- Ambient operating temp: -40°F to 165°F (-40°C to 74°C)
- Humidity: up to 95% RH (non-condensing)

Testing

- Tested under FCC CFR 47, part 15, section 15.245
- FCC certification on product label
- FCC regulation-compliant for life of the sensor
- Tested under NEMA TS 2-1998
 - Shock pulses of 10 g, 11 ms half sine wave
 - Vibration of 0.5 g up to 30 Hz
 - 300 V positive/negative pulses
 - Stored at -49°F (-45°C) for 24 hours
 - Stored at 185°F (85°C) for 24 hours
 - Operation at -29.2°F (-34°C) and 10.8 VDC
 - Operation at -29.2°F (-34°C) and 26.5 VDC
 - Operation at 165.2°F (74°C) and 26.5 VDC
 - Operation at 165.2°F (74°C) and 10.8 VDC

Manufacturing

- Manufactured in the USA
- Surface mount and wave solder assembly
- IPC-A-610C Class 2-compliant
- Operational testing:



- Sub-assembly test
- 48-hour unit level burn-in
- Final unit test
- Unit test results available

Support

- Training and tech support available from Wavetronix
- Wavetronix training includes:
 - Installation and configuration instruction to ensure accurate performance
 - Classroom and in-field instruction
 - Knowledgeable trainers
 - Use of presentation materials
 - Virtual configuration using computer playback
 - Instruction in use of computer and handheld devices and other necessary equipment
- Wavetronix tech support includes:
 - Technical representatives available for installation and configuration

- Ongoing troubleshooting and maintenance support

Documentation

- Comprehensive user guide
- Installer quick-reference guide
- User quick-reference guide
- Documentation available upon request:
 - Detection accuracy
 - Range accuracy
 - Earliest range of detection
 - Speed accuracy
 - ETA accuracy
 - FCC CFR 47 certification
 - NEMA 250 standard for type 4X enclosure third-party test data
 - NEMA TS 2-1998 standard third-party test data

Warranty

- Two-year warranty against material and workmanship defect (see SmartSensor Extended Warranty datasheet for complete details)

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The advertised detection accuracy of the company's sensors is based on both external and internal testing, as outlined in each product's specification document. Although our sensors are very accurate by industry standards, like all other sensor manufacturers we cannot guarantee perfection or assure that no errors will ever occur in any particular applications of our technology. Therefore, beyond the express Limited Warranty that accompanies each sensor sold by the company, we offer no additional representations, warranties, guarantees or remedies to our customers. It is recommended that purchasers and integrators evaluate the accuracy of each sensor to determine the acceptable margin of error for each application within their particular system(s).