



SenSpot™ Wireless Surface Velocity Radar

Ultra-Low Power Precision Sensing & Wireless Communication



Typical Applications

- Flood monitoring
- Scour monitoring
- Hydrometeorology
- Ocean science
- Academic research
- Monitoring open channels flow, including:
 - ✓ Rivers
 - ✓ Streams
 - ✓ Canals
 - ✓ Irrigation canals
 - ✓ Outlet/inlets
 - ✓ Process water canals

Specifications

- **Wireless communication:** IEEE 802.15.4
- **Wireless communication range:** 1.0km (0.62 mile) free space
- **Ingress Protection:** IP67, weatherproof, waterproof, protected against rain, snow, and UV exposure
- **Working temperature:** -40°C to +85°C (-40°F to +185°F)
- **Accuracy:**
 - ✓ +/- 2% of measured value (0.08 m/s to 4 m/s) (0.26 to 13.12 ft/s)
 - ✓ +/- 2.5% of measured value (4 m/s to 12 m/s) (13.12 to 39.37 ft/s)
- **Resolution:** 0.1 mm/s (0.0003 ft/s)

- **Measurement range velocity:** 0.08 to 15 m/s (0.26 to 49.12 ft/s), depending on flow conditions
- **Direction distance:** 1 to 50 m (3.3 to 164 ft.)
- **Distance Water:** 0.5 to 25 m (1.64 to 82 ft.)
- **Rotation range of swivel mount:**
 - ✓ Lateral axis: $\pm 90^\circ$
 - ✓ Longitudinal axis: $\pm 15^\circ$
- **Dimensions:**
 - ✓ Wireless transceiver box: 140mm (5.50") x 105mm (4.12") x 62mm (2.44")
 - ✓ Velocity sensor: 134.5mm (5.3") x 114.5mm (4.5") x 80mm (3.2")
 - ✓ Solar panel: 140mm (5.5") x 114 mm (4.5") x 89 mm (3.5")
- **Weight:**
 - ✓ Wireless transceiver: 120 g (4.2 oz)
 - ✓ Velocity sensor (without mounting bracket): 820 g (28.9 oz)
 - ✓ Velocity sensor (with mounting bracket): 1530 g (54 oz)
 - ✓ Solar panel: 100 g (3.5 oz)

Benefits

- **Wireless transmission:** No wiring is required for data collection.
- **Long lifetime :** Unlimited lifetime in presence of ambient light
- **Easy mounting :** Flange mount or adhesive tape
- **Maintenance free :** No battery replacement, calibration or post-installation maintenance is required
- **Energy self-sufficient:** solar powered
- **Durable solution:** continuous non-contact surface velocity measurements during low, normal or high flows

Description

SenSpot™ Surface Velocity Radar/Sensor provides an easy to install, scalable solution for monitoring open channels. Resensys SenSpot™ technology

offers a high performance method for large-scale sensing, wireless synchronization, and ultra-energy efficient wireless communication.

SenSpot™ is designed to operate maintenance-free for more than a decade. After installation, SenSpot™ does not need calibration, battery replacement, or any other maintenance during its entire service life. Due to small size and lightweight, adhesive-mount SenSpot™ sensors can be applied easily to as many significant spots of channels as needed, with minimal installation effort.

SenSpot™ Surface Velocity Radar/Sensor uses OTT SVR 100 to measure flow in open channels and rivers continuously and without contact. For more information about it please visit:

<https://www.ott.com/products/water-flow-3/ott-svr-100-2406/>

SenSpot™ Surface Velocity Radar/Sensor is mounted above the water surface, away from floating debris using a flexible bracket for vertical or horizontal installation.

Surface velocity readings are applicable for discharge computation based on the index – velocity – method.

This product has capability of identifying data influenced by sensor movement (e.g., wind, traffic) using meta data from integrated vibration and tilt sensors. Furthermore, this device can reduce and eliminate effects of wind, precipitation, vibration, or waves by setting site specific filters and it is able to detect flow direction automatically.

Installation

Wireless transceiver box has mounting flange. It can be installed either through the flange holes and screws (for concrete and rough surfaces) or VHB adhesive tape (for steel and smooth surfaces).

Wireless Transceiver Dimension

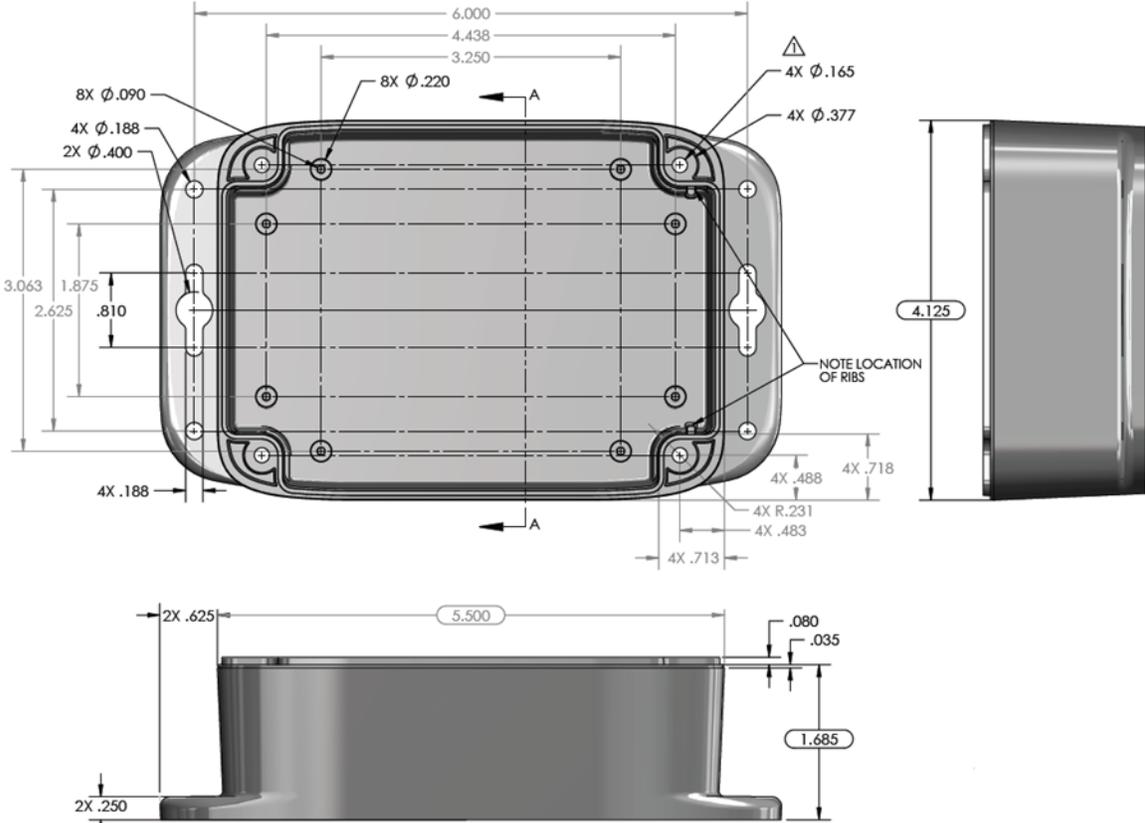


Figure 1: Wireless transceiver dimensions for Surface Velocity Radar/Sensor. All dimensions are in inch.