

Typical Applications

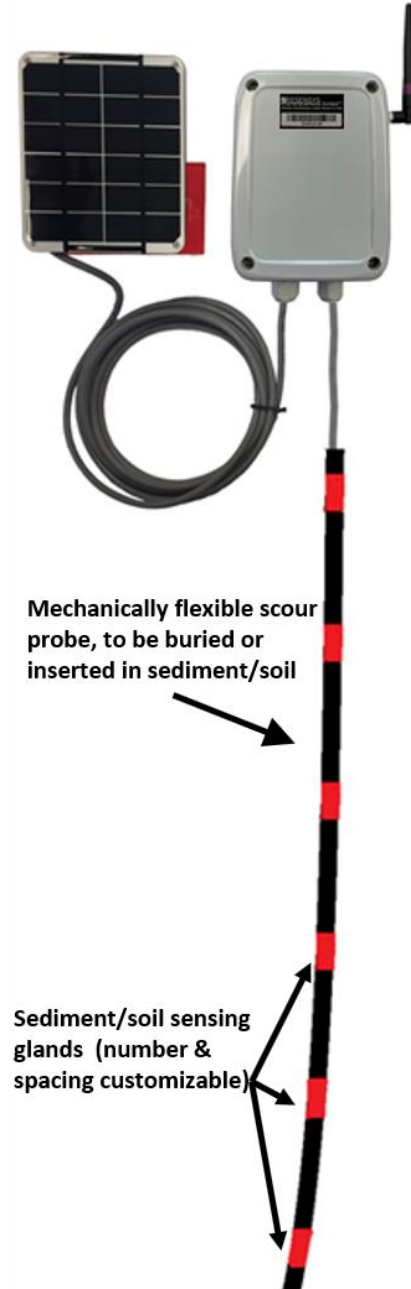
- Bridge scour monitoring
- Hydraulics monitoring
- Slope stability monitoring

Benefits

- **Long lifetime:** Almost indefinite battery life (rechargeable battery).
- **Wireless transmission:** No wiring is required for data acquisition.
- **Lightweight:**
 - Wireless transceiver: 450 g (1 lb)
 - Scour probe: 0.8kg (1.8lb)
 - Solar panel with mount and 3m (10ft) cable: 300 g (10.6oz)
- **Easy mounting:** Flange mount or adhesive tape
 - Self-adhesive, no drilling is required (smooth surfaces such as steel).
 - Flange-mount, drilling is required (uneven surfaces such as concrete).
- **Ingress Protection:** IP67, weatherproof, waterproof, protected against rain, snow, and UV exposure.
- **Maintenance free:** No battery replacement, calibration or post-installation maintenance required.

Specifications

- **Working temperature:** -40°C to +65°C (-40°F to +150°F).
- **Wireless communication range:** 300m (980ft) for reliable communication.
- **Dimension (transceiver box):** 140mm (5.50") x 105mm (4.12") x 62mm (2.44")
- **Customizable scour probe length:** 0.3m (1ft) to 30m (100ft)



- **Sediment detection glands:** up to 8 glands along sensing probe, custom spacing from 5cm (2in) to 3m (10 feet) between successive sediment sensing glands.

- **Optional stainless-steel support:** The sensing probe can be encapsulated in a U-shaped stainless-steel profile in applications where the probe is inserted into sediment.

- **Temperature sensor:** each node has a built-in temperature sensor with resolution of 1°C (Celsius).

Description

Bridge scour refers to the removal of sediment such as sand, soil, and rocks from around bridge piers or abutments by fast moving flood current. It can cause erosion around the bridge piers or abutments. As scour occurs progressively, supporting material around the bridge foundation is removed and it can lead to settling or other forms of foundation instability.

Resensys Scour Probe SenSpot™ measures soil/sediment level close to the bridge foundation with a novel patented (both in US and international) method that is completely different from current available methods. The probe or sensing element consists of up to eight sediment sensing glands that are connected to the electronic transducers through a cable. The nodes are located inside a waterproof mechanically flexible tube. The length of the tube (scour probe) and the spacing between successive sediment sensors can be customized according to the application needs. The probe can be buried to insert into sediment in locations with a high risk of scour.

Please see Figures 1 and 2 for further details. Figure 1 shows schematic view of a bridge with installed wireless scour probe before erosion while figure 2 shows the same bridge foundation after erosion event. The SenSpot™ can detect whether each node is inside soil or water with a novel patented method. As a result, the river bed level range can be detected. The distance between each node is customizable according to customer needs. That gives customers flexibility and tradeoff between the necessary resolution and probe length which is decided based on the river depth.

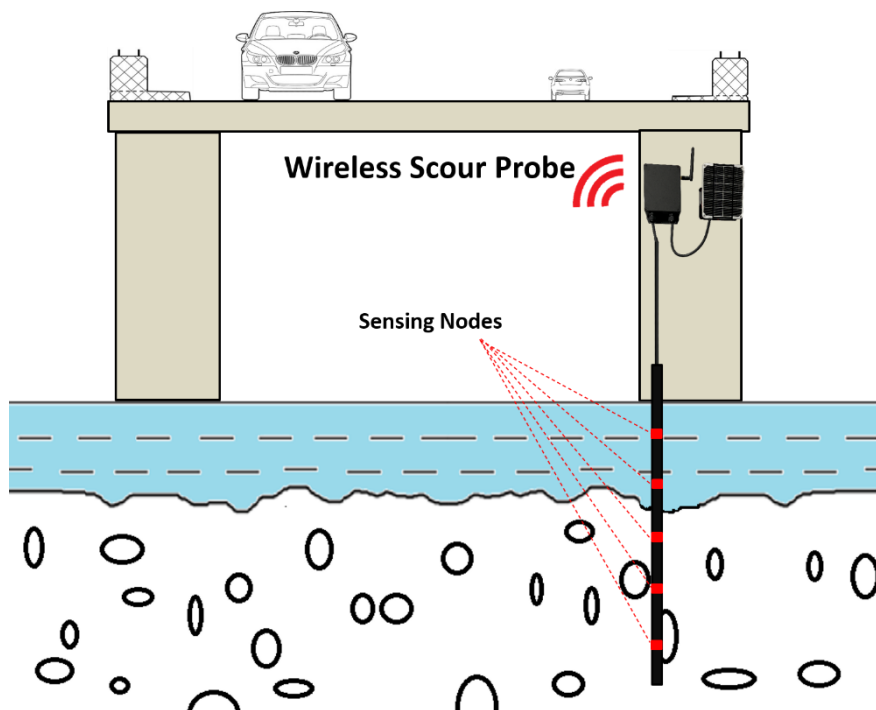


Figure 1: Schematic view of a bridge with installed Wireless Scour Probe before erosion

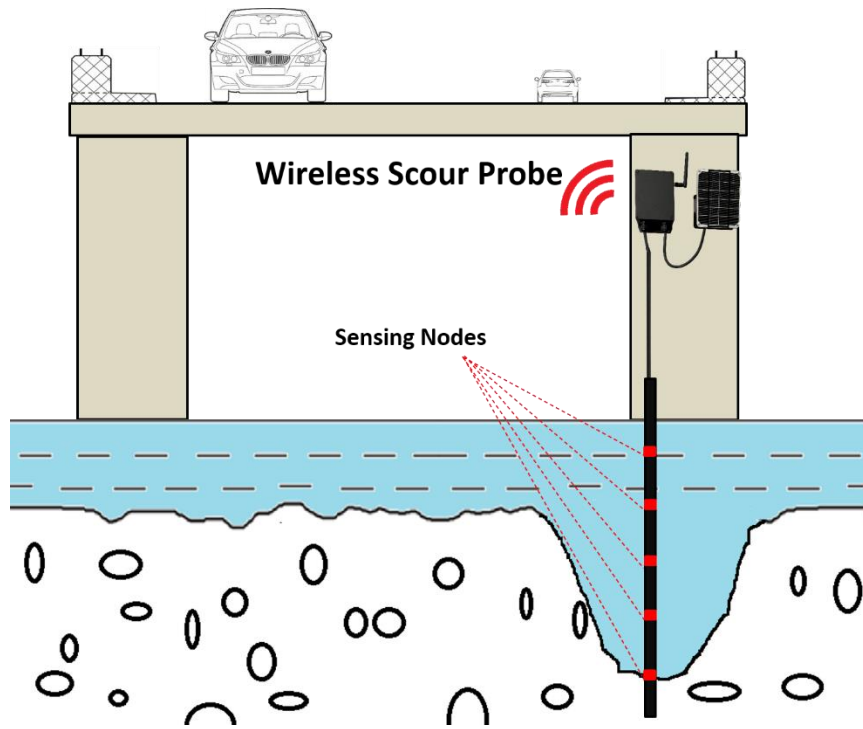


Figure 2: Schematic view of a bridge with installed Wireless Scour Probe after erosion

Installation

Wireless transceiver box comes with mounting flanges. It can be installed either with screws and anchors through the flange holes or with VHB adhesive tape (for steel and smooth surfaces).

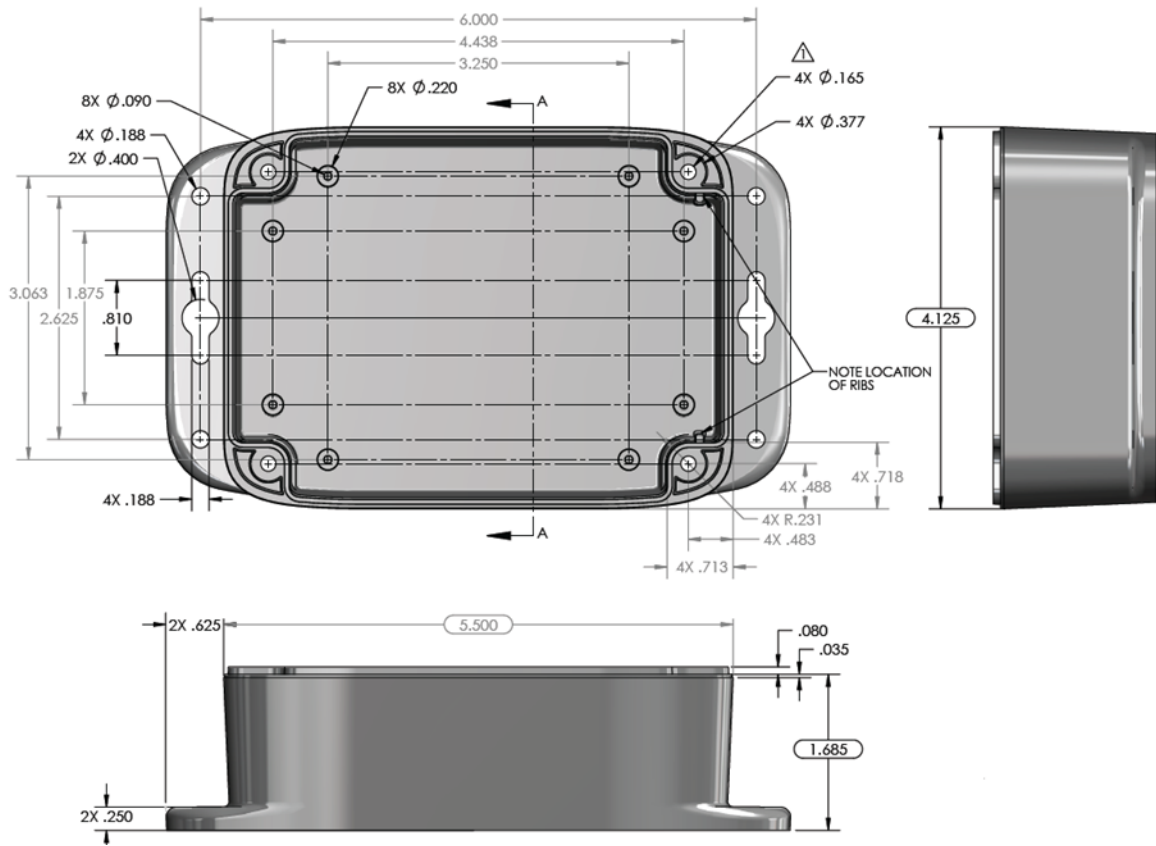


Figure 3: Wireless transceiver dimension (in inch)

