SURGE Sensor

TACTICAL PASSIVE RADAR & DIRECTION FINDING FOR AIRSPACE AWARENESS

SURGE is a rugged, mobile passive RF sensor built for expeditionary units and fixed-site operations alike—optimized for use at forward operating bases or rapidly shifting tactical environments. Combining multi-static passive radar and RF detection/direction finding in a single package, SURGE delivers two mission-critical capabilities—without increasing SWaP.

Whether mounted to a vehicle or emplaced at a temporary checkpoint, SURGE gives units real-time low-altitude situational awareness and the ability to detect and track advanced aerial threats—while staying fully passive and undetectable.

Key Operational Advantages

Dual-Mode Superiority

SURGE performs both passive radar and RF detection simultaneously, providing enhanced threat classification and improved targeting confidence.

Detects RF-Silent Threats

Passive radar capability enables the tracking of targets others miss—including dark drones and other RF-silent platforms.

Designed for Contested Environments

Operates across diverse environments by leveraging available RF energy from a variety of signal sources, providing continuous passive radar performance.

Fully Passive & Emission-Free

Tracks low-flying threats (sUAS, drones, loitering munitions) without revealing its presence, so your unit doesn't become the target.

Battlefield Integration Ready

Open APIs and flexible outputs enable real-time integration into tactical C2 systems like ATAK, CLUE, or Palantir COP tools.



Field Proven & Mission Ready

- Selected for U.S. Army Program of Record.
- Integrated on multiple Army vehicles.
- MIL-STD-810H and MIL-STD-461G designed for shock, weather, and EMI resilience compliance.
- Demonstrated performance in contested multidomain exercises.



SURGE Sensor Specifications

PERFORMANCE

Frequency Coverage:

■ Passive Radar & Direction Finding: 1.7–6.0 GHz

• RF Detection/TDOA: 0.4-6.0 GHz

• Field of View: 120 deg Azimuth × 90 deg Elevation

• Track Accuracy: <2 deg Azimuth, <1 deg Elevation

• Track Update Rate: 2 Hz

Detection Range:

 Passive Radar - 5 - 30+ km, depending on emission source and target type

RF Detection - 7 - 25 km, depending on environment

ENVIRONMENTAL HARDENING

Ingress Protection: IP66 (dust and water resistance)

Design, Standards & Compliance:

MIL-STD-810H (shock, vibration, temperature)

MIL-STD-461G (EMI / EMC)

SIZE, WEIGHT & POWER (SWaP)

• Sensor Enclosure: 20 in W × 39 in H × 15 in D; 75 lb

• Co-processor Enclosure: 16 in W × 8 in H × 14 in D; 24 lb

Power Requirements:

• Sensor: 335 W

Co-processor: 250 W

Power Input:

■ DC: 20-33 VDC, <25 A, MIL-STD-1275

■ AC: 100-240 VAC, <6 A

INTEGRATION & DATA OUTPUTS

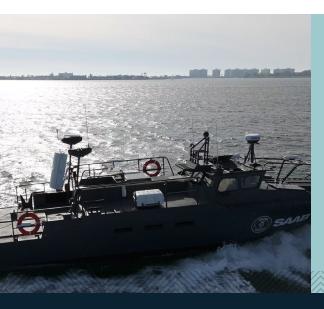
Primary I/O: 100 Mbps / 1 Gbps RJ45 Ethernet

• Raw Data Output: 100 Gbps SM LC Fiber

Output Data Format: GeoJSON-based API (track and detection data)

C2: JSON RESTful API (mode, run/halt, etc.)

 Network Compatibility: Fully networkable and seamlessly integrates into Hidden Level's Airspace Monitoring Service (AMS)



DEPLOYMENT OPTIONS & FLEXIBILITY

- Vehicle-Mounted: Integrate onto mobile platforms for surveillance and convoy support.
- Tripod-Based: Low-SWaP enables rapid deployment and teardown.
- Fixed-Site and Tower Mounted: Suitable for fixed and persistent lowaltitude awareness.
- Software Defined Flexibility: SURGE evolves with the threat—fast, flexible, and future-ready.



Protect your airspace with multi-function, passive RF sensors that deliver decision advantage and coordinated response—long-range detection of aerial threats across contested and complex environments, legally deployable and battle-tested.