

DETECT DRONES WITHOUT EMITTING A SIGNAL

Wideband passive RF sensors to hunt and geolocate signals from COTS, modified, and military drones

FORCE PROTECTION

BASE PROTECTION

BORDER SECURITY MONITORING

ISR

BATTLEFIELD SURVEILLANCE

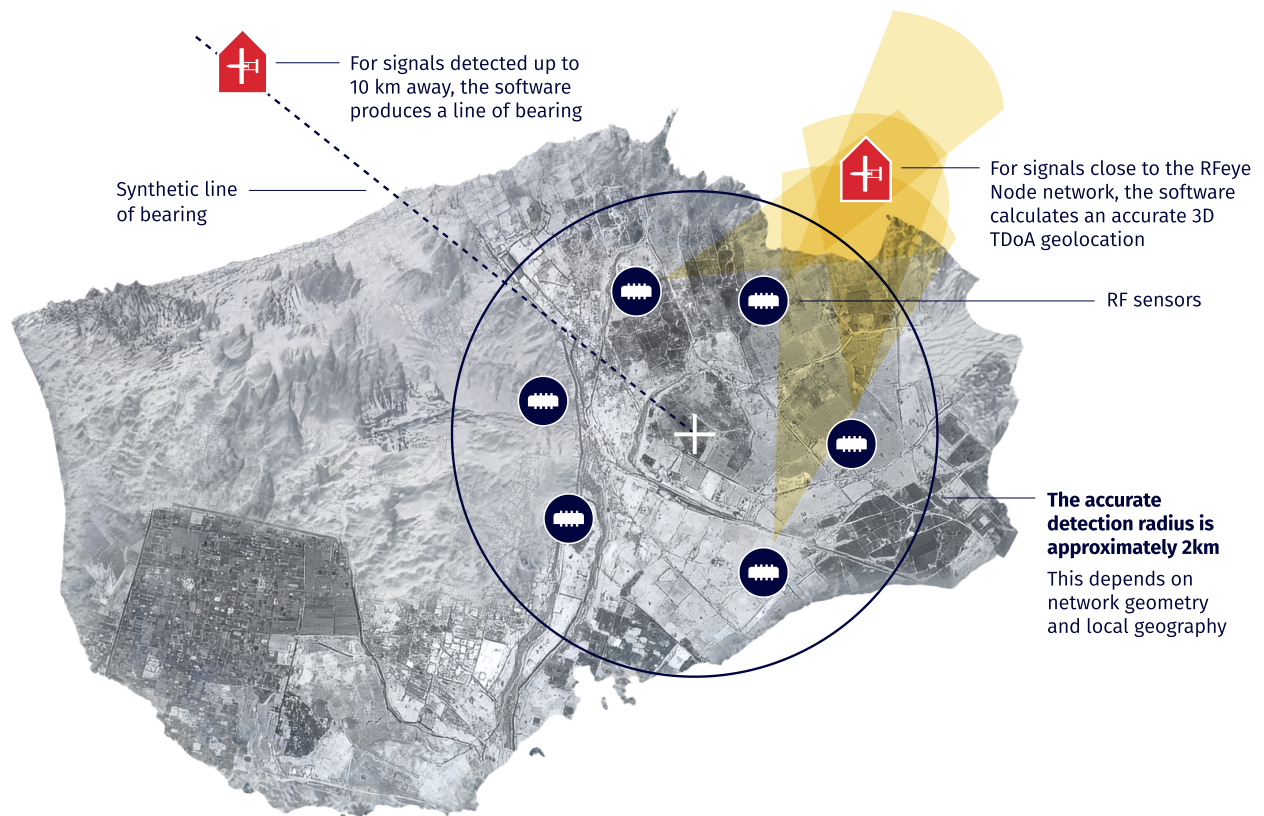
LARGE EVENTS

CRITICAL INFRASTRUCTURE PROTECTION

Passive RF sensors can form scalable networks that monitor the spectrum persistently across wide areas. Unlike library-based systems, they detect any RF emission from drones or their operators—without emitting signals or interfering with other systems. Using COTS hardware and advanced software, the system geolocates threats in real time with high accuracy using 3D TDoA and line-of-bearing techniques. This TRL-9 technology integrates seamlessly into existing c-UAS architectures via open APIs, enabling multi-sensor fusion and enhanced situational awareness.

Benefits of integrating RFeye Nodes into a c-UAS

- Gain early warnings & real-time alerts
- Operate under EMCON
- Compliment radar & EO/IR sensors
- Detect objects with a low RCS
- Reduce rate of false positives
- Non-library-based—detect the signal, not the drone
- Receive automated geolocations for signals of interest



Operational workflow

1. Monitor the spectrum continuously and passively from 10MHz to 40GHz using RFeye Nodes.
2. Detect known drone signals, such as telemetry, control links, and video downlinks using custom-built CRFS detectors.
3. Discover unknown, low-power, or frequency-hopping emissions from modified or non-standard drones using Signal Discovery in RFeye DeepView.
4. Geolocate signals of interest in real time with high precision using 3D TDoA, or obtain a line-of-bearing when signals are detected at greater distances.
5. Cue other sensors or effectors, such as EO/IR or electronic countermeasures for confirmation, tracking, or interdiction.

Key CRFS differentiators

CRFS' COTS sensors offer a scalable solution, enabling users to gradually expand their network and extend the sensor baseline from c-UAS to SHORAD and MRAD over time.

Sensor networks can be monitored from remote Command and Control posts located anywhere on the planet, and troops on the ground can view geolocations in real-time using a Tactical Awareness Kit (TAK).

RF SIGNAL	WHAT DETECTION ENABLES	DETECTION DIFFICULTY
C2 link	Identifies and tracks the operator or ground control station (GCS) location	Many modern drones employ Frequency Hopping Spread Spectrum (FHSS) technology
Telemetry link	Identifies and geolocates the operator or ground control station location	Smaller drones often use lower power transmitters
Video downlink	Verifies ISR activity; reveals drone targeting or surveillance intent	Bands used by commercial drones are crowded
Payload data link	May imply higher-threat drone	Payload data links may operate in various unlicensed bands



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