

BlackTALON Counter-Drone System

Model 981 - RF Detection, Location, Tracking & Defeat

The BlackTALON Counter-Drone System provides detection, location, identification, tracking and RF inhibition of drones. BlackTALON Model 981 incorporates one or more RF sensors for drone detection, location and tracking and, a multi-channel RF inhibitor for drone defeat; other sensors can be integrated as needed to increase CONOPS flexibility.

BlackTALON is the result of a technology partnership between TCI International and Enterprise Control Systems (both of SPX Corporation),

leveraging more than 85 years' combined RF experience. This experience in the RF and Counter-Drone domains for military applications ensures high performance, reliability and availability of the BlackTALON Counter-Drone solution.

The BlackTALON capability is delivered using only fully proven TRL9 systems, proven in combat operations through multiple deployments in hostile territories and the harshest environments.

KEY FEATURES

- › Passive RF-sensor detection and geo-location
- › Long range, directional multi-band RF inhibition defeat
- › Intuitive user interface
- › Automated operations
- › Fully integrated solution

BEST VALUE SOLUTION

- › Fixed, transportable and mobile deployment options maximize CONOPS flexibility
- › Modular and scalable architecture ensures mission success today and in the future
- › Minimized total lifecycle cost
- › Field upgradable



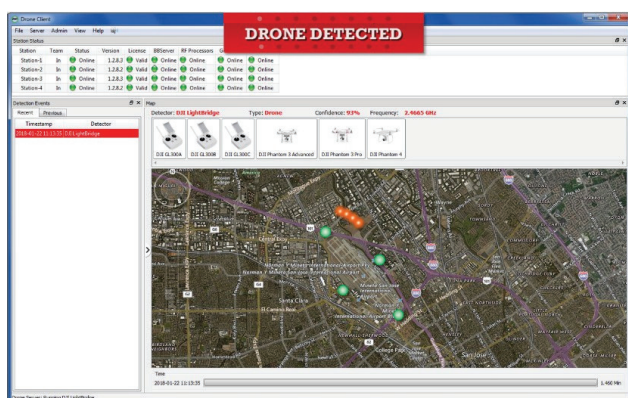
BlackTALON Overview

The RF Sensor

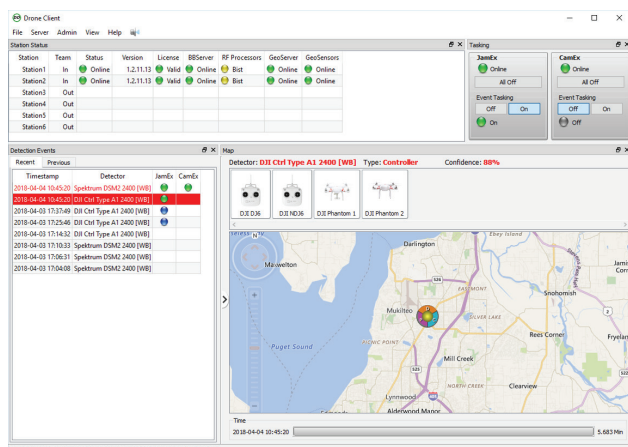
The field-proven Blackbird drone detection, geolocation and defeat application running on the next generation BlackSWIFT™ hardware platform provides automated drone and controller RF detection, direction finding, tracking and geolocation (when multiple sensors are used). The RF Sensor utilizes a field upgradable drone detector library to automatically identify the type of drone/controller with high probability of intercept and low probability of false alarm.

The RF sensor provides one or two channels, each with 80 MHz RF instantaneous bandwidth, able to scan from 20 MHz to 8.5 GHz, and utilizes multiple Digital Downconverters (DDCs).

TCI's proprietary dual-channel DF First® technology uses 9-element correlative interferometry, providing DF accuracy between 2 and 5 degrees RMS depending on the DF antenna, deployment CONOPS, and deployment environment.



> BlackTALON Drone Detection Screen



> BlackTALON RF Inhibitor Command Screen



> BlackSWIFT RF Sensor

The RF Inhibitor

The RF Inhibitor is a purpose-designed multi-band system, engineered for maximum effectiveness against drone command and control (C2) links. RF inhibition can be activated either selectively or simultaneously across the 400 MHz to 6 GHz spectrum, targeting five threat 'bands' which are designed to defeat the C2 links commonly deployed throughout the drone threat landscape (i.e. 433 MHz, 915 MHz, 2.4 GHz, 5.8 GHz and GNSS bands).

The RF Inhibitor uses software defined radio (SDR) source generation, delivering an inhibition waveform best suited for counter-drone operations. Changes and new threats may be accommodated under software control.

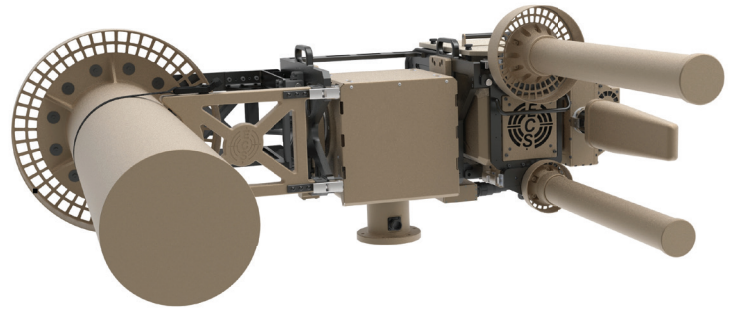
High gain directional antennas, coaxially mounted with the EO sensor pod, transmit the inhibition waveforms ensuring that the antennas illuminate the target drone. The antennas have a nominal 20° beamwidth that provides the designed power density at the target drone and mitigates collateral impact.

The User Interface

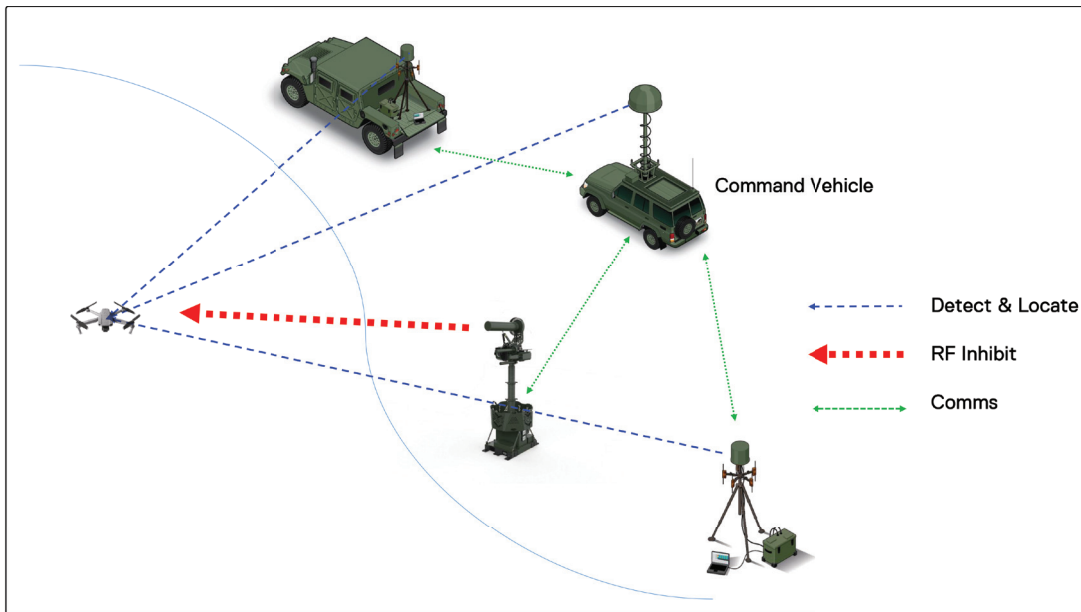
A single operator console provides full control and display of the BlackTALON RF Sensor and RF Inhibitor subsystems. The integrated display capability enables the operator to make a timely, informed decision to defeat a drone threat utilizing the long range, directional RF Inhibitor to disrupt the drone C2, telemetry and navigation systems, using the multi-channel RF Inhibitor. The system can jam multiple simultaneous drones over multiple frequency bands based on the detected RF transmissions.

Flexible CONOPS / Installations

The BlackTALON system is modular and scalable to maximize CONOPS flexibility, and multiple RF sensors can be deployed with one or more RF Inhibitors. Additional sensors such as EO/IR and Radars can be integrated with the solution. The solution can be deployed in fixed, transportable and mobile implementations.



> Claw RF Inhibitor



> An example of multiple RF sensors in mobile, transportable and vehicle-deployed configurations to detect, locate and track drones and controllers. The Claw RF Inhibitor can be deployed in similar configurations, depending on the desired CONOPS. All systems are connected via a local area network using one or more communications methods.



BlackTALON Specifications Overview

RF Sensor Specifications

Model	BlackSWIFT with Blackbird Drone Detection, DF & Geolocation
RF Frequency Range(s)	20 MHz to 8.5 GHz; Scan for drones in 433 MHz, 915 MHz, 2.4 GHz and 5.8 GHz ranges
DF Methodology	Dual channel correlative Interferometry using 9-element DF antennas
Geolocation Methodology	AOA, TDOA and Hybrid AOA/TDOA (multiple RF sensors required)
DF Accuracy	2° to 5° (typical) – depending on DF antenna and environment
Deployment Options	Fixed, mobile, transportable, man portable

RF Inhibitor Specifications

Model	Claw Directional RF Inhibitor
Radio Type	Software Defined Radios (SDRs)
RF Frequency Range(s)	GNSS, 433 MHz ISM, 915 MHz ISM, 2.4 GHz ISM and 5.8 GHz ISM/ WiFi
Antennas	Four integrated 15 dBiC nom. circular polarized high gain One integrated 17 dBi nom. high gain log periodic
Waveforms	Please inquire, Custom inhibition waveforms specific to the threats
Output Power	GNSS: Variable 100 mW min. 10 W max. 433 MHz ISM: Variable 5 W min. 33 W max*. 915 MHz ISM: Variable 5 W min. 33 W max*. 2.4 GHz ISM: Variable 1 W min. 40 W max. 5.8 GHz ISM: Variable 1 W min. 10 W max.

*Note: The combined 433 MHz and 915 MHz ISM RF output power is 33 W max.

Together, ECS and TCI address the Spectrum Battlespace domain to provide a more holistic, yet increasingly customer-tailored solution for the full lifecycle of RF communications: from tactical datalinks providing long-range, secure communications; to tactical SIGINT/COMINT solutions that detect, locate and classify RF communications; to RF inhibitors that can inhibit RF communications signals. These synergistic hardware and software solutions provided enhanced capabilities to paint a clearer battlefield common operational picture (COP) of the RF spectrum and help to better facilitate the interdiction of unmanned aerial systems (C-UAS) and remotely controlled improvised explosive devices (C-RCIEDs).

Export of TCI International, Inc. systems and products may be subject to U.S. export controls.
U.S. Export License may be required.



TCI INTERNATIONAL, INC. 3541 Gateway Blvd., Fremont, CA 94538-6585 USA
TEL: 1-510-687-6100 | FAX: 1-510-687-6101 | USA: 1-800-824-8074 | www.tcibr.com

