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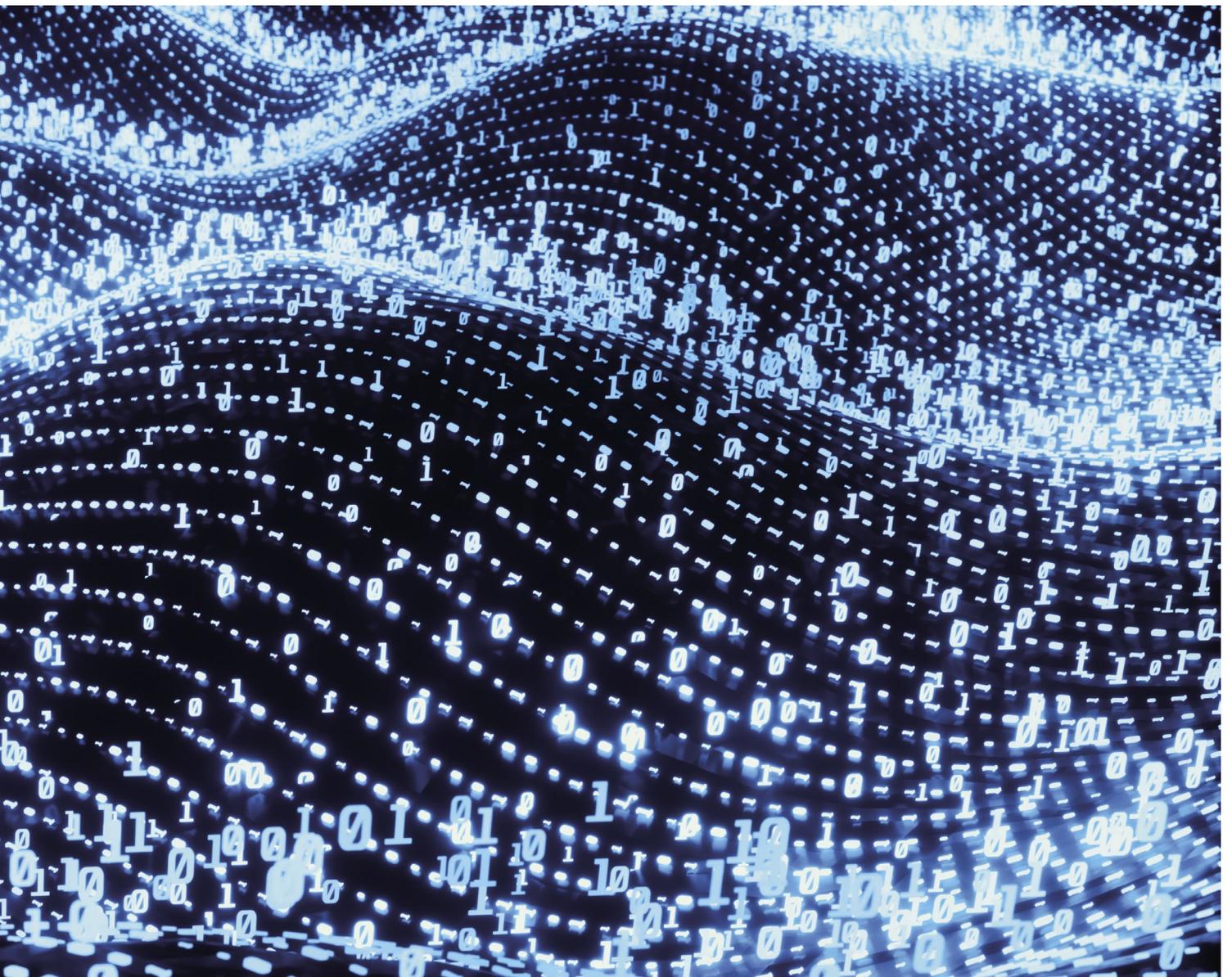
BLACKTALON™

Scalable C-UAS Solution

SPX COMMTECH

A world Leader in **Tactical Data Links, Electronic Warfare, Counter-Unmanned Air Systems & Spectrum Monitoring.**

Business overview

ECS ⤢
TACTICAL DATALINKS

- FMV & IP data
- Air to Ground
- Air to Air
- Ground to Ground

ECS+TCI ⤢
SPECTRUM BATTLESPACE

- COMINT
- C-UAS
- RF Defeat
- Direction Finding
- Geolocation
- Signal Detection & Analysis

TCI® ⤢
Master the Spectrum

- Direction Finding Geolocation
- Signal Detection & Analysis
- Digital Signal Processing
- Special Antenna Manufacture

ECS Engineering & Production

TCI Engineering & Production

COMMTECH Marketing

COMMTECH Senior Management

- COMMTECH includes ECS & TCI which are wholly owned SPX companies located at Wappenham, UK and Fremont, California respectively. With a long established history, both companies have focused on solving difficult RF problems in challenging environments & markets.

- The COMMTECH companies specialise in providing solutions operating within the Electromagnetic Environment (EM). The detection, location, defeat and communication capabilities provide our customers and partners with cutting edge technology to support their communications and monitoring activity.

- ECS & TCI technologies are focused on Radio Frequency (RF) systems, which underpins the three key product groups:

    - **Tactical Data Links** – Enabling secure transportation of video, audio and IP Data within ISR systems.

    - **Spectrum Battle Space** – Delivering spectral dominance to support strategic and tactical operations on both domestic and expeditionary operations.

    - **Monitoring Services Spectrum** – Empowering governmental agencies who control the Electromagnetic spectrum.

**DETECT**   **TRACK**   **DEFEAT**

Overview

BLACKTALON is a scalable Counter Unmanned Aerial System (C-UAS) solution that Detects, Tracks and Defeats UAS engaged in hostile activity or surveillance by a nuisance drone enthusiast, insurgents, state actors or hostile militaries.

BLACKTALON provides comprehensive situational awareness and mitigation as a standalone or networked capability, as a multi-layered C-UAS, or as a component of a Ground Based Air Defence (GBAD) system. Evolved from the operationally proven Anti UAV Defence Systems (AUDS), the **BLACKTALON** C-UAS solution combines more than 135 years of experience in the defence and security technology sector from Enterprise Control Systems and TCI International (both companies of SPX Corporation), working together along with their carefully selected valued partners.

Scalable solution

BLACKTALON is an open architecture C-UAS solution that also enables users to integrate their legacy or preferred sensors and to interface the system to their Command & Control (C2) system of choice. This allows capability to be scaled in response to an emerging and evolving Concept of Operations (ConOps), to the Operational Environment and to the available budget. This flexibility allows for a custom solution approach that embraces established Technology Readiness Level 9 (TRL9) components into a solution for immediate operational impact whilst providing the ability to scale the sensor and effector solution in response to changing threats and ConOps in the future. The outcome is early and reliable detection, pinpoint tracking, and selective defeat options to mitigate the UAS of concern.
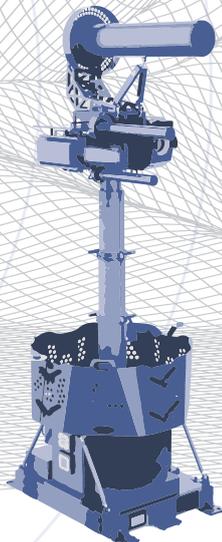
Concept of Operations (ConOps)

BLACKTALON is scalable and flexible to address multiple ConOps, these include, but are not exclusive to:

Critical National Infrastructure – High value infrastructure such as nuclear power plants, oil refineries, and fuel depots.

Border protection – National borders where hostile UAS incursions are taking place.
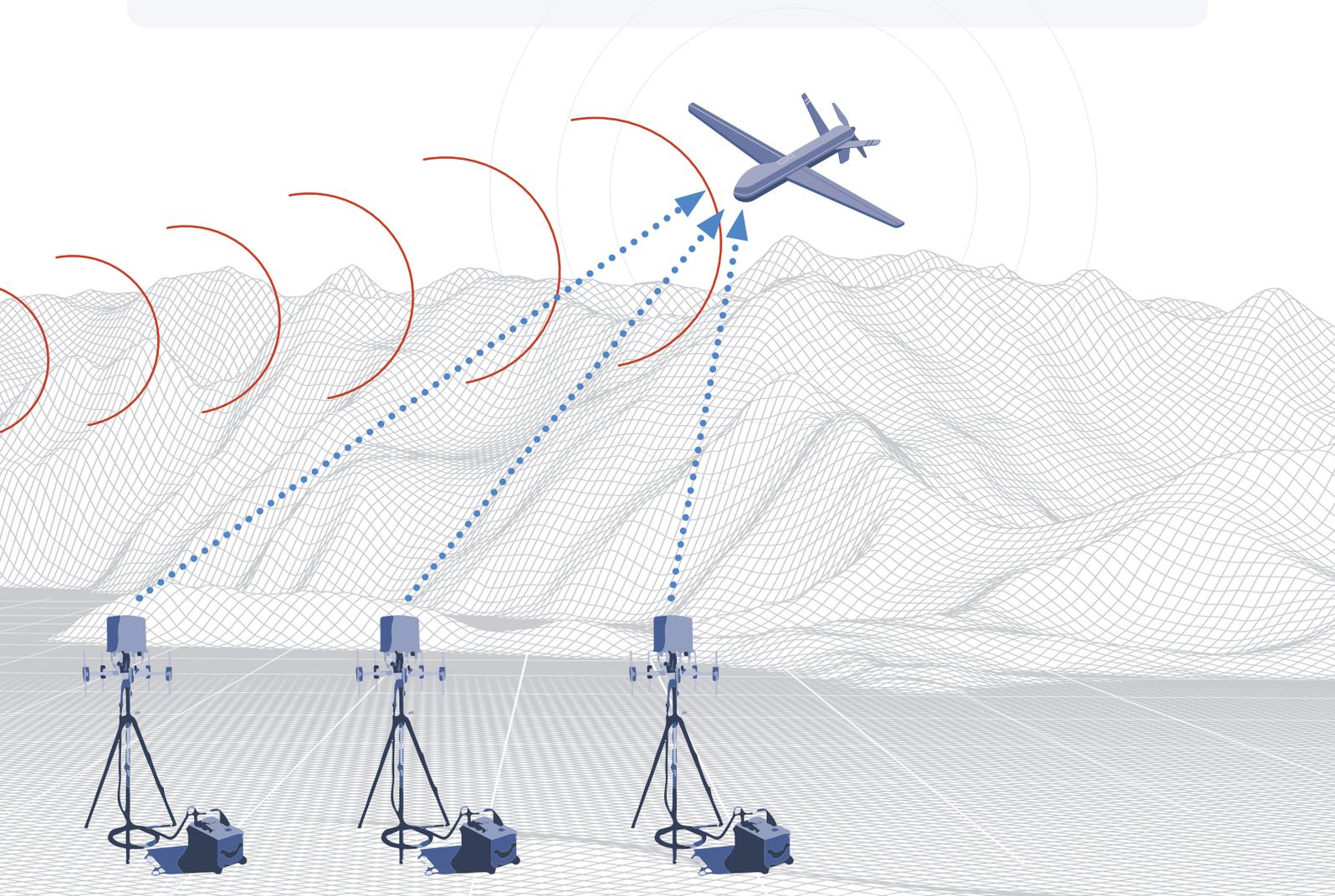
Airbase/port protection – Flight path disruption or threats to high value platforms.

Forward operational base protection – Surveillance or weaponised drone activity in theatres of operation.

Force protection – Protection of deployed personnel from surveillance or weaponised UAS activity.

Mounting options

BLACKTALON can be deployed in a number of configurations to support the individual needs of each user ConOps.

Portable Solution

This is a combined quad mast and/or quadpod based system (depending on configuration) which can be temporarily deployed on the ground or positioned on building rooftops by a two-person team. The system components are stored in cases which are manoeuvrable and highly portable, allowing for installation in areas which are commonly accessed through tight doorways or hatches, and up staircases or ladders. The system is powered from a single mains or DC power socket and set-up time is typically less than one hour.

Mobile Solution

The mast can be mounted on a client's mobile platform. The platform can range from commercial all-terrain vehicles to fully armoured wheeled or tracked military vehicles. The system components can be integrated onto a single platform or split across two platforms depending on the ConOps. The mobile solution allows for rapid set up and tear down maintaining manoeuvrability and increasing survivability across a large Operational Area (OA). Each mobile solution will require an integration study to ensure that the **BLACKTALON** solution is seamlessly integrated both physically and electronically, ensuring safe operation of the platform and optimising the configuration of the **BLACKTALON**.

Fixed Solution

For applications where **BLACKTALON** is a permanent installation, it can be supplied in a fully containerised unit, with an air-conditioned workspace, and an integrated power supply from mains power or a generator. It can also be installed onto a building of the client's choice. A full site survey is conducted to ensure the correct location is selected to maximise system performance within the ConOps and the selected building is structurally sound with appropriate power to support the deployment of **BLACKTALON**. In addition to the building survey the site and location will also be surveyed to ensure that the siting of the system not only meets but exceeds the operational requirement of the customer.

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SPECTRUM BATTLESPACE
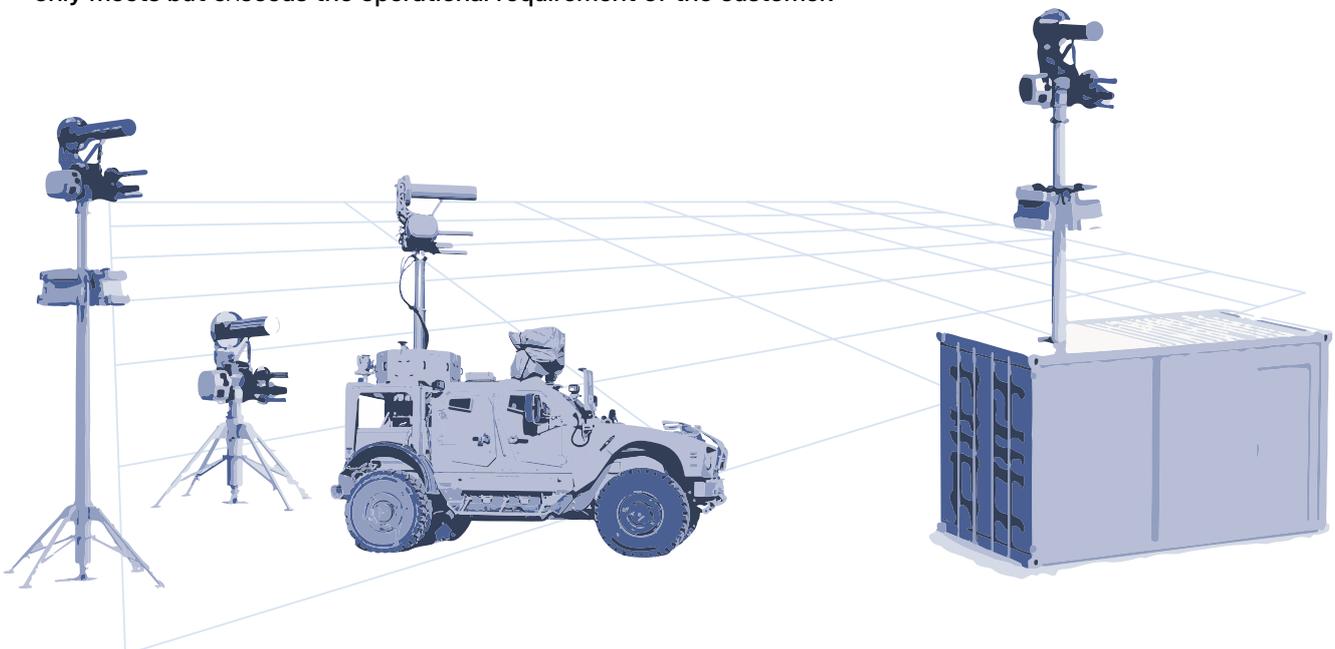
Solution options
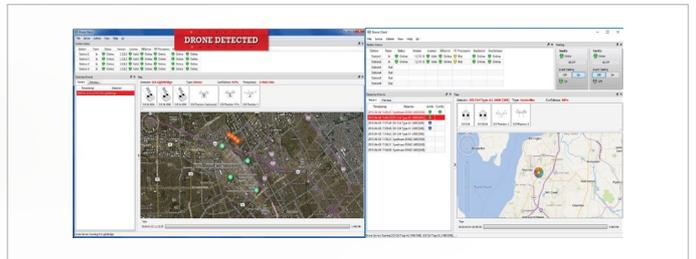

Active RF Sensor (Radar)

EO Sensor (Camera)

RF Defeat

Advance C-UAS solution

Passive RF Sensor

User Interface

Entry level solution BLACKTALON 1 – Passive RF Detect, Track & Active RF Defeat

Option 1 – Single passive RF detector + Drone Detect software (Bearing to Target)

Option 2 – Single passive RF detector + RF Inhibitor + Drone Detect software (Bearing to Target)

Option 3 – Three passive RF detectors + RF Inhibitor + Drone Detect software (Geo location of target)

Advanced C-UAS solution - BLACKTALON 2 – Passive & Active RF Detect, RF and EO Track & Active RF Defeat

Option 1 – Single passive RF detector + Active Radar + EO + RF Inhibitor + Integrated C2 software (Geo location and Elevation of target)

Option 2 – As above with client specified components or third-party sensors* (Geo location and Elevation of target)

*Consultation will be required to ensure that the third-party sensor can be integrated into the **BLACKTALON** architecture

The User Interface

A single operator console provides full control and display of the **BLACKTALON** sub-systems. The integrated multi-sensor capability enables the operator to make a timely informed decision to defeat a UAS threat utilising the long range, directional RF Inhibitor to disrupt the UAS C2, telemetry and navigation systems.

Passive RF Detect (RF Detector)

The Drone Detection application running on the next generation **BLACK SWIFT** hardware platform, provides automated drone and drone controller **RF DETECT**, direction finding, tracking and geolocation (when multiple sensors are used). The RF Sensor uses 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.

Active RF Detect (Radar)

The Active RF detection radar is a modular non-rotating, electronic-scanning (e-scan) system with a low probability of intercept which can accurately **DETECT**, track, and classify within the operational airspace. The active RF detector provides rapid and precise location information for cueing other sensors within the solution. Active RF detect radars are selected from a variety of vendors to best meet the user ConOps, this may also include the detection of ground base personnel and vehicles.

The Electro Optical (EO) Sensor

A selection of EO sensors with long range colour camera and a high sensitivity Thermal Imager (TI), along with state-of-the-art video tracking technology are available to TRACK UAS and, combined with RF sensors' target information, accurately classify the target. The TI is coupled with the latest generation of advanced image processing electronics to deliver superior imaging performance in addition to enhanced narrow full resolution e-zoom capability. The EO sensors can provide good low light functionality for imaging in low light conditions.

The RF Inhibitor

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

The RF Inhibitor uses software defined radio (SDR) source generation, delivering an inhibition waveform best suited for C-UAS. High gain, directional antennas transmit the inhibition waveforms ensuring that the antennas illuminate the target. The antennas have a nominal 20° beamwidth providing the power density required at the target UAS whilst mitigating collateral impact upon other systems.

* GNSS (Global Navigation Satellite System)

Why BLACKTALON?

With the use of Unmanned Aerial Systems proliferating and being deployed in a number of scenarios within the military and security sector, the need for the **BLACKTALON** scalable, modular, C-UAS solutions has never been more critical. Hostile militaries, state sponsored actors, insurgents and even nuisance drone enthusiasts are all adopting the ever-evolving UAS technology to give them a tactical or strategic advantage in the activity they are engaged.

The ability to **Detect**, **Track** and **Defeat** UAS as a standalone or as an integrated multi sensor solution gives clients the ability to effectively counter UAS threats with an effective and surgical response. The scalable and modular architecture of **BLACKTALON** ensures mission success today with early entry capability and can be scaled and field upgraded in line with doctrine, tactics, and threat evolution, ensuring total lifecycle costs are minimised and the C-UAS solution is fit for purpose in the future.

With fully integrated TRL 9 components **BLACKTALON** is an operationally proven solution which delivers world class C-UAS capability.

Key features

- Open Architecture, compliant to NATO SAPIENT and ASTERIX standards
- Modular and scalable, allowing for the integration of legacy or client specified components
- Portable, mobile, and fixed site options maximise ConOps flexibility
- Passive & Active RF-sensor options for detection, geo-location, and tracking
- Long range EO options with state-of-the-art video tracking technology
- Long range, directional, multi-band RF inhibition defeat
- Intuitive user interface with automated operation
- A fully integrated, TRL 9 solution

ECS + TCI