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TCI | ECS
SPECTRUM BATTLESPACE

Claw
RF Inhibition Solutions

COMMTECH

RF Inhibition Product Range

Product Development Timeline

LEGACY PRODUCTS

ANALOGUE

DART Range

10/20W / Static

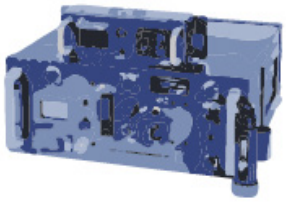
Specific Threat

DDS

FALCON Plus

Vehicle Borne / 120W C-RCIED

GSM/VHF/UHF Channels



KESTREL Family

10W Manpack Portable

The Threat

The ability to counter terrorist threats and to provide communication security continues to be one of the highest global priorities. Remote Controlled IEDs and the proliferation of mobile communications mean that **RF Inhibitors** are in increasing demand by **Defence**, **Security** and **Policing** organisations. By using sophisticated threat analysis with the very latest technology, **Enterprise Control Systems (ECS)** can provide a sophisticated defeat capability to current and emerging threats.

ECS's combat proven capability is attributed to the ability to design all products in-house, with emphasis on long-term reliability through proven quality management processes. Our engineering team are dedicated to product development, ensuring that ECS consistently produces leading designs and is able to react quickly to changing threats.

ECS has many years of experience in the design and manufacture of a wide range of RF Inhibitors and has utilised analogue and Direct Digital Synthesis (DDS) technologies. Combining our legacy experience with emerging technology ECS is now delivering Software Defined Radio (SDR) Jamming Systems technology to Counter – Unmanned Arial Systems (C-UAS) and Counter Remotely Controlled Improvised Explosive Devices (C-RCIEDs). The employment of RC-IEDs has proliferated globally in recent years and ECS systems have been successfully employed in several operational theatres.

LEGACY PRODUCTS

LATEST PRODUCTS

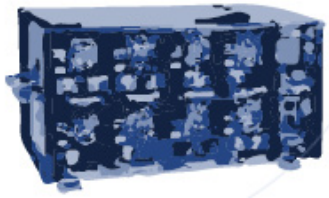
DDS

SDR

GRIFFIN

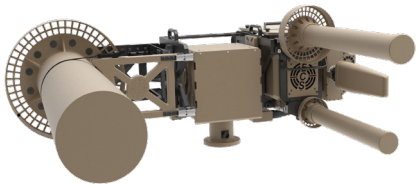
Vehicle Borne / 500W

20-2400 MHz



CLAW

Counter unmanned threats



Threat Protection

RC-IED's account for the largest proportion of military and civilian casualties in today's asymmetric warfare environment. This threat has resulted in continuous demand for **ECS's RF Inhibitors** from the Iraq and Afghanistan conflicts onwards. **ECS's RF Inhibitors** utilise software fills based on sophisticated threat-analysis for operations in multiple electronic threat environments.

RF Inhibition Product Range

DART: A portable analogue inhibitor systems designed for fast deployment in a ruggedised briefcase envelope.

FALCON PLUS: A wideband Software configurable DDS vehicle-mounted C-RCIED RF Inhibition system for vehicle protection.

KESTREL: A multi-unit Software configurable DDS lightweight (7kg) manpack C-RCIED RF Inhibitor,enabling rapid dismounted deployment.

GRIFFIN: A wideband Software configurable DDS vehicle-mounted C-RCIED RF Inhibition system to protect VVIPs and vehicle convoys.

CLAW: The latest iteration of ECS's layered RF Inhibition capability is an advanced SDR multiband directional C-UAS RF Inhibitor package. Claw enables inhibition of five Command and Control (C2) links between the target UAS and its operator.

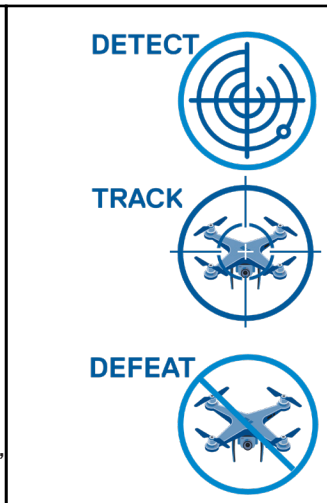
BLACKTALON is a World Leading Counter-UAS System

Since 2021, CommTech has collaborated with its multiple partners to offer an integrated and propietry anti-UAV Defence System, BLACKTALON.

BLACKTALON

CommTech has the in-house capability to integrate the Claw RF Inhibition system into multiple C-UAS detect and track systems.

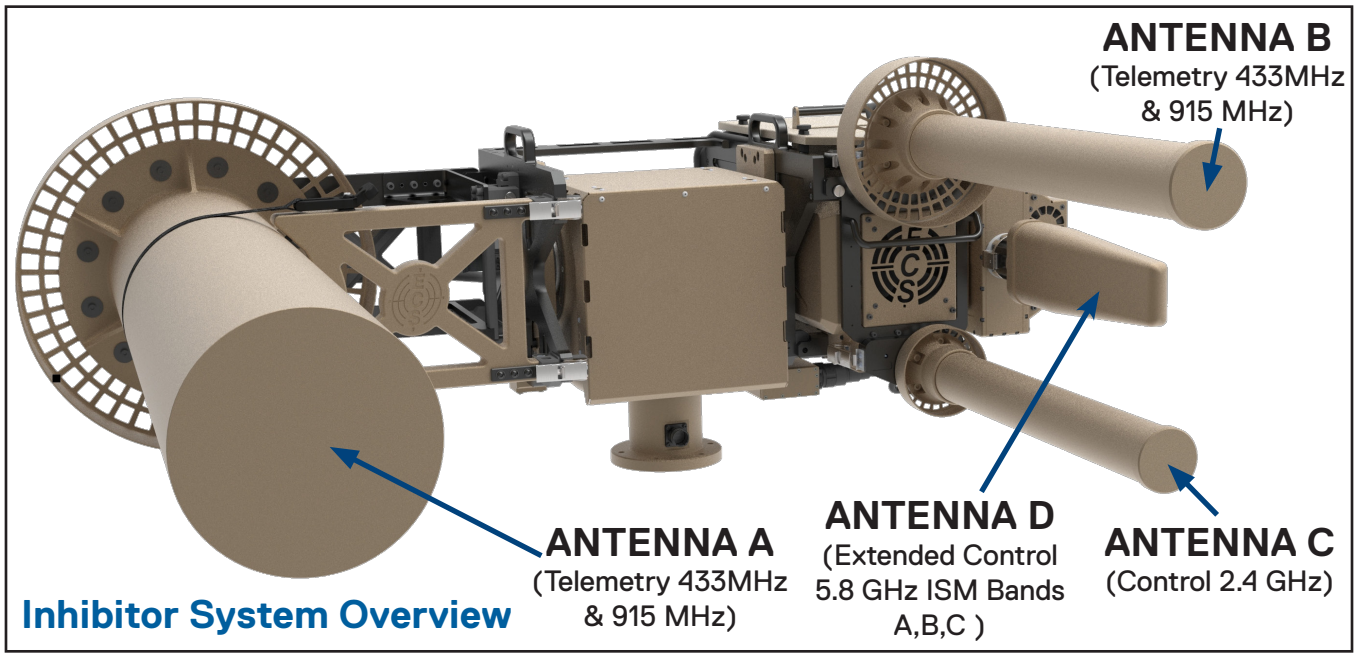
BLACKTALON is a scalable Counter Unmanned Aerial System (C-UAS) solution that Detects, Tracks and Defeats UAS engaged in hostile activity or surveillance by a nuisance drone enthusiast, insurgents, state actors or hostile militaries.



BLACKTALON 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 CommTech (of SPX Technologies), working together along with their carefully selected valued partners.

CommTech supplies the Defeat technology and the Passive RF Detect, under its Claw RF Inhibition system that includes advanced SDR source multiband RF Inhibitors with coaxially mounted directional antennas, which selectively defeat the target UAS C2 channels. The Drone Detection application running on the next generation 953 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.



Inhibitor System Overview

The Claw Directional Inhibitor is a self-contained inhibitor system that combines the (RF) power with a highgain multi-band directional antenna system.

The Claw Inhibitor comprises of dual mast-mount units covering the 433MHz, GNSS, 915MHz, 2.4GHz and 5.8GHz ISM frequency bands with RF output powers to the antennas of up to 83W. With an aggregated RF output power to the antennas of up to 150W.

The Claw system disrupts the control, navigation and telemetry links used by UAS and can be customised for end-user requirements.

Claw is a secure fully self-contained, compact system with no external signal processing or Power Amplification modules required, which insulates the solution from third-party interference and aids integration into multiple sensor systems.

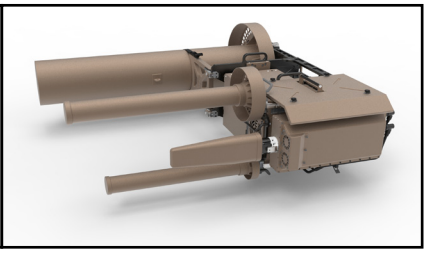
The Claw System comprises the following:

- Directional antenna enclosures
- Two SDR directional inhibitor units
- Either 2 AC, or 1 DC Power Supply Units
- Claw positioning head

Antenna Design

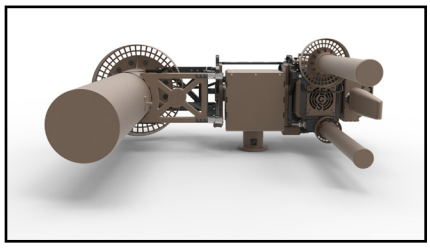
High-gain, narrow beamwidth, antennas maximise the power density at the target threat device whilst minimising disruption of co-located systems.

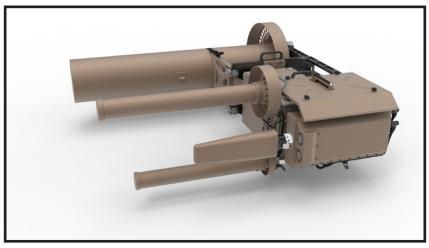
In-house development allows bandwidth, polarisation and gain to be tailored to changes in threat devices identified in the field.

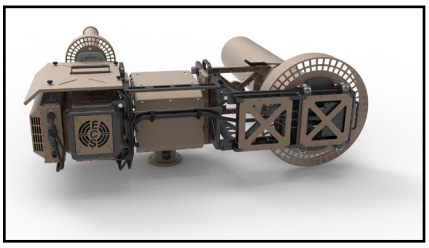


RF Inhibitor C-UAS

Claw System and Directional Inhibitor Units





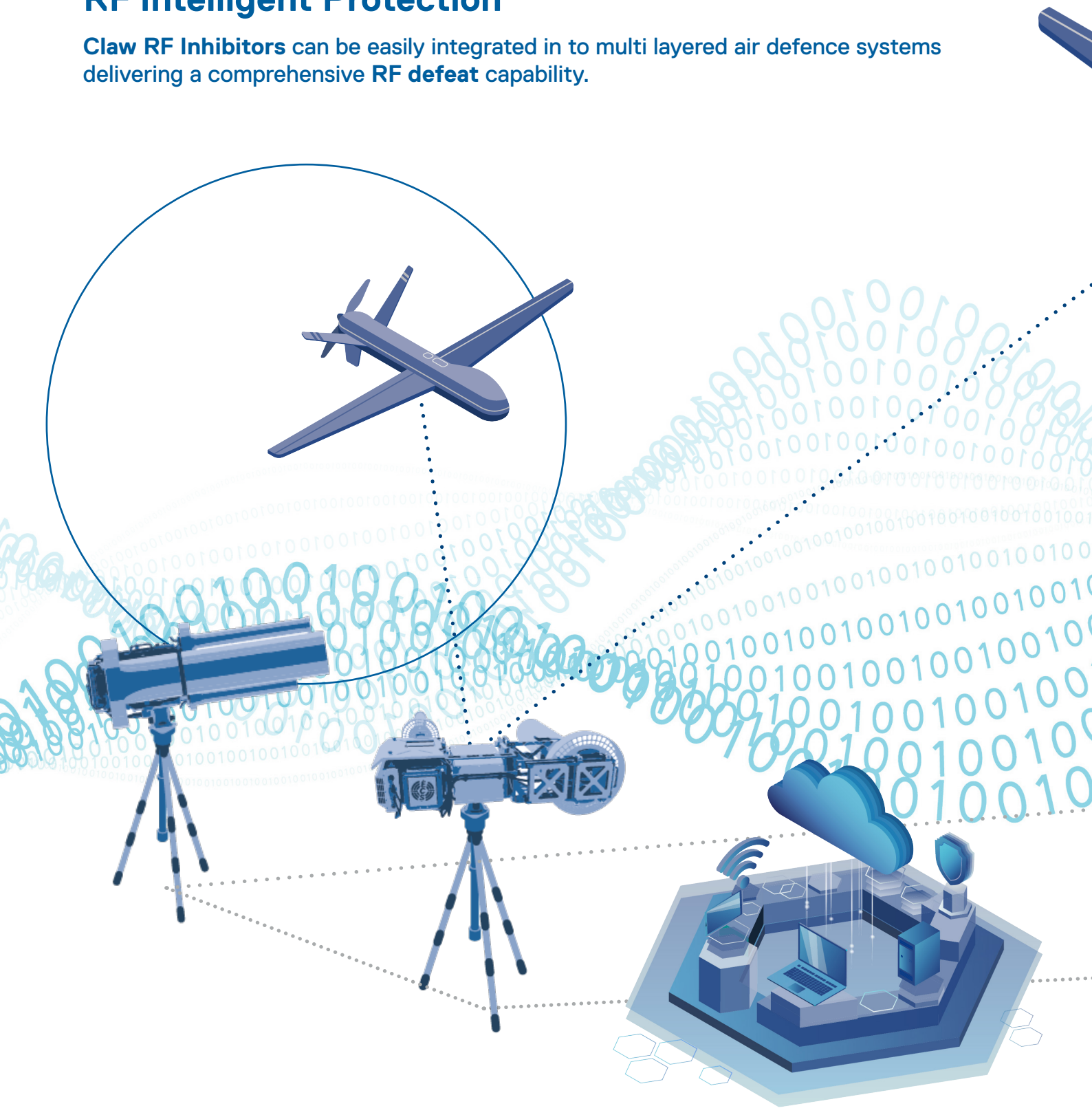


Differentiators	Key Attributes
Custom System Design	• RF Inhibition designed to focus specifically on the UAS threat and the C2 links used by UAS • Designed for Military, Security and Critical National Infrastructure (CNI) operational environment • Designed for integration into multi-element detect, track and defeat systems
Directionality and Waveform Polarisation	• A directional, not omni-directional, effect • Addresses a target detected by any sensor type (Radar, RF, Optical) • Inhibition waveform attributes optimised for UAS C2 defeat • Software Defined Radio (SDR) source • Waveform polarisation optimised to defeat agile airborne platforms • Inhibition effect delivered at range (at a low power consumption)
Frequency Selectivity and Spectral Cleanliness	• Specifically targets the operational frequency of the UAS C2 system • Selectable in discrete or operated simultaneously on all bands • Precise band occupancy with minimal detrimental harmonic effect
Power Control and Duration	• Low power consumption whilst still delivering extended range performance • Inhibition initiated only when required and for minimum necessary duration so is not 'always-on' • Designed with precision feedback to enable highly repeatable, stable output across extremes of temperature • Dynamic power control feature

RF Inhibitor Technology

RF Intelligent Protection

Claw RF Inhibitors can be easily integrated in to multi layered air defence systems delivering a comprehensive **RF defeat** capability.



Primary C² Station

Critical National Infrastructure

Why Claw?

With military and security customers demanding performance to counter the increasing threat of malicious or hostile drone activity. Operationally proven with over 2000 confirmed defeats, the Claw RF Inhibitor provides more range, accuracy, and agility than any RF Inhibiting system, defeating drone attack in excess of 9km, keeping critical infrastructure and people safe.

Claw's unparalleled record for long range drone defeat is in part because it is powered by an ECS designed SDR, ensuring real time, reactive and targeted power allocation within 400MHz to 6GHz frequency range providing intelligent RF Inhibition ensuring spectral cleanliness limiting collateral damage.

The Claw targeted power comes courtesy of the quintuple band antenna system, developing up to 2350W of directed energy to defeat UAV RF Data Links. The high-gain, narrow beamwidth, 400MHz – 6GHz antennas maximise the power density at the target threat device whilst minimising disruption of co-located weapon and communications systems.

Interoperability is one of the major successes of the Claw RF Inhibitor's sensor agnostic modular design. It could not be easier for an integrator looking for a layered approach, to seamlessly harmonise with third party multisensory C2 drone detection and kinetic systems, to provide ultimate operational flexibility.

Proven to be robust and reliable through operational deployments, Claw benefits from multiple mounting positions, allowing it to be integrated onto fixed and manned or robotic mobile platforms. So, whether the requirement is to permanently protect CNI, repel incursion across borders, or defence of VVIPs on a platform of your choice, Claw is the ideal choice for your RF defeat solution. Because the system is a fully ECS design, minor modifications can easily be made and reworked in our mechanical workshop, if required.

Selected and used worldwide, Claw delivers a world class RF Inhibition Capability for C-UAS.

COMMTECH
AN SPX TECHNOLOGIES PLATFORM

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