Electronic Counter Measures

protect

Effective protection against current and emerging threats
The evolution of RCIEDs

The threat of RCIEDs has evolved exponentially over recent years. The ad-hoc production of these devices often makes them the weapon of choice for terrorists and insurgents seeking to disrupt, injure or kill on a large scale.

As the intensity and technology used in such attacks develops, so too must the counter measures used to defeat them. Optimum Size, Weight and Power (SWaP) along with advanced jamming methods is required to defeat the threat, maximise resources and stay one step ahead of the enemy, shifting the balance of power whilst increasing the security and agility of patrolling and front line troops.

The proliferation via the internet of build instructions, often using commercial components with legitimate uses, has resulted in the mass-production and use of RCIEDs.

As the threat continues to grow, it becomes increasingly difficult to predict just how these devices will evolve. The ability to adapt quickly, utilising software defined architectures to produce effective counter measures in response to these emerging threats, is vital in the continuing fight against terrorism and insurgency.

L-3 TRL are committed to delivering the very best in ECM, providing life-saving protection for military personnel, law enforcement, VVIPs and civilians.

L-3 TRL develop and deliver sophisticated Electronic Counter Measure (ECM) solutions designed for the protection of personnel and facilities in military, law-enforcement and VVIP environments, utilising advanced jamming techniques to target the electromagnetic spectrum and effectively exploit intelligence gathered in the field.

With award winning products, L-3 TRL’s Research & Development remains at the forefront of defence and government agency requirements, providing effective ECM against the threat of Radio Controlled Improvised Explosive Devices (RCIEDs).
Protecting the public

Keeping pace with an increasing danger

The development of the threat

IEDs (Improvised Explosive Devices) kill more soldiers in modern warfare than any other weapon system. Not only can they strike troops on ground patrols and in road convoys, they are also used to kill and injure thousands of civilians. The rising number of attacks by these powerful homemade bombs is increasingly evident.

Detonation can be carried out using a variety of methods; some use transmitters such as a mobile phone or hand-held radio, while others are ignited by command wires attached to switches such as washing machine timers. Others are victim-operated but all are designed with the aim of disrupting operations and daily life whilst inducing fear and anxiety among troops and the general population.

The use of IEDs, and especially RCIEDs, in civilian environments is increasing and is a growing concern for police and security agencies. The ability to target and counter selected radio frequencies, whilst still allowing vital communication between blue forces, is imperative in safeguarding and protecting the public against these ever increasing threats.

Whether the requirement is to safeguard personnel, vehicles, checkpoints or fixed-base facilities, we have the technology to ensure effective protection. Whilst the threat of RCIEDs continues to evolve, the counter measures designed to stop them remains a principal focus for L-3 TRL.

The importance of comms inhibition

The complexity and far reaching range of organised crime affects both individuals and the wider economy, diverting large amounts of police resources away from other areas.

The proliferation of organised crime presents issues for both police and special forces. Monitoring, tracking and taking measures to stop the actions of these groups is costly both in time and money, so ensuring that actions are carried out effectively and efficiently is critical.

The increasing ease of communication between individuals and groups, both on a national and international scale, aids the reach of control of these adversaries. The ability to selectively provide denial of service at specific times is an essential part of the operational process.

The L-3 TRL range of ECM provides the technology needed to inhibit vital opposition communications at the very centre of any operation. Police and special forces can then discharge their duties with selective denial of service to adversary communications operators.
With a 30 year pedigree of developing sophisticated ECM equipment, our award winning BROADSHIELD® portfolio provides life-saving protection from the threat of RCIEDs within a range of operational scenarios.

Manpack solutions for dismounted protection

Working on intelligence gathered from their field operational base, soldiers in Afghanistan have detected a possible terrorist hideout based in a heavily populated, built up area. The area is unfamiliar and has been subject to RCIED attacks in the past.

In order to provide protection and lower the threat of detonation, a BROADSHIELD MCS Manpack is used to provide protection against possible radio control signalled detonation devices.

Threat cell analysis and the understanding of threats allow dismounted troops to utilise the flexibility of the low and high band variants of the BROADSHIELD MCS Manpack.

Software definable mission settings and targeted jamming provide the ability to defeat the threat whilst retaining the use of vital combat radio and blue force communications.

Vehicle and fixed-base solutions for continuous protection

After an ongoing investigation, special forces teams assemble to perform a dawn raid on suspected leaders of an organised crime ring.

Intelligence gathered indicates the existence of several key members living in the local area and the emphasis of the operation is to gain access to the premises without the target being alerted.

Any communication between the target and key members of the group could jeopardise the operation.

The compact nature of the BROADSHIELD WBS and the use of a directional antenna provides a jamming system to ensure all adversary radio communications are inhibited for the duration of the raid.

High power solutions for effective protection

Troops mobilised for a peace keeping mission are travelling to an area with a high civilian population. The only route available to make this journey has recently been blocked and the appearance of disturbed soil indicates that RCIEDs may have been planted by the roadside.

Space is limited inside the vehicle, so electronic protection equipment needs to be both compact yet remain effective. The requirements of this mission are also for troops to patrol the local area improving relations and increasing civilian confidence in the military.

Key to the success of the mission is the effective protection from potential RCIED attacks.

The innovative, modular design of the BROADSHIELD HCS provides up to 150W of active/reactive jamming capability augmented with up to 30W of special purpose jamming can be used where space is limited.

The BROADSHIELD HCS can also be re-roled for Manpack use, making it one of the most versatile, powerful systems available.

Discreet solutions for covert requirements

A high profile government agency has arrived for peace talks. Due to the sensitive nature of the visit, the emphasis is very much on protection.

Potential threats have been identified and steps must be taken to ensure the convoy is protected against RCIEDs, whilst at the same time being able to blend in with traffic undetected. Hidden inside the vehicle spare wheel recess is a BROADSHIELD IDS Jammer.

This discreet system utilises covert antennas and operates on the vehicles’ standard DC supply, minimising the visible footprint.

The targeted jamming capability also minimises disruption to other RF spectrum users, making it ideal for use in highly populated areas.
Manpack Solutions
Flexible dismounted protection for tactical scenarios

Modular Counter-Measures Suite (MCS)
Active / Reactive Jammer

The BROADSHIELD MCS Manpack Jammer is modular in design offering complete flexibility in a tactical environment. Able to operate in active or reactive modes, in both low band (20MHz – 520MHz) and high band (420MHz – 6GHz) frequencies, the MCS can be rapidly reprogrammed in the field to optimise its jamming capability, target frequencies and operating parameters.

With an innovative software defined architecture, the MCS has achieved widespread, life-saving success with military and civilian forces worldwide.

Key Features
- Designed for tactical operations
- Up to 2 x 10W RF output
- Field reprogrammable
- Stores multiple mission settings
- Ruggedised for military use
- User-initiated zeroize facility to erase critical data

Lightweight Counter-Measures Suite (LCS)
Compact Active Jammer

The BROADSHIELD LCS Manpack Jammer is the latest addition to the world-leading BROADSHIELD family. Utilising the award winning MCS technology, the LCS is compact in design with optimal size, weight and power configuration.

Able to operate in both low band (20MHz – 520MHz) and high band (420MHz – 6GHz) frequencies, the lightweight design increases the agility of soldiers during missions, whilst providing life-saving protection from the threat of RCIEDs.
Continuous protection for an increased threat stand-off range

Vehicle and Fixed-Based Solutions

Wideband Vehicle-Borne System (WBS)
Active Jammer

The BROADSHIELD WBS is compact in design with two integral power amplifiers in an efficient mono-block package. Multi-channel and programmable, the WBS operates over the 25MHz - 2.5GHz range allowing the selection of extended jamming capability, avoiding unnecessary gaps or blind spots in the spectrum.

The WBS ensures maximum adaptability to future threats, avoiding the limitations of ‘banded’ jamming products.

Key Features
- Designed for high power jamming
- 6 independent signal exciters to generate complex and effective jamming waveforms
- Up to 150W RF output power
- Field reprogrammable
- Integral power amplifiers

Wideband Exciter Unit (WBE)
Signal Generation Active Jammer

The BROADSHIELD WBE contains 6 independent exciters which, when routed to external power amplifiers, can be used in applications that require very high power targeted jamming solutions, such as VVIP convoy protection and fixed-base environments.

As with the WBS, the WBE unit operates over the 25MHz - 2.5GHz range covering the entire bandwidth allowing the design of countermeasures without gaps or blind spots.

Key Features
- Signal generation for extended high power jamming
- 6 independent signal exciters to generate complex and effective jamming waveforms
- Field Reprogrammable
- Designed for use with external amplifiers
- Continuous spectral coverage against multiple threats

TRL Technology
Discreet Solutions

Hidden protection against a hidden threat

Integrated Discreet System (IDS)

Active / Reactive Jammer

For covert requirements, L-3 TRL can offer a discreet ECM system configuration with the installation of hardware units into a variety of vehicle platforms. Installation can be tailored to specific customer requirements. In this example, the hardware units have been mounted onto a purpose-built plate which sits inside the vehicle spare wheel recess.

Alternative solutions could utilise an external spare tyre enclosure, a roof box or even motorcycle panniers to hide the system from view.

Configurations operate on a standard vehicle DC supply, making it a highly flexible solution which can be installed in most vehicles without requiring power modifications. For multiple or larger convoys, the BROADSHIELD IDS can also be installed onto motorcycles.

This provides protection at vulnerable points of the convoy whilst allowing other vehicles to operate without ECM fitted. IDS can be used independently or as part of a larger ECM solution for a combined jamming capability, offering effective protection against a range of RCIED threats.

Key Features

- Discreet system configuration
- Low power consumption
- Fitted covert antennas
- Targetted jamming
- Variety of vehicle platform installations
High-Power Compact System (HCS)

Where a high power jamming capability is required but space is restricted, utilising the MCS technology, L-3 TRL can offer a flexible but compact solution. Systems can be configured into a stack of up to three interoperable units, each providing 50W of reactive or active jamming, with an additional 10W of active capability per unit, all within an integrated hardware package.

A highly configurable, modular and fully interoperable system with the ability for individual MCS units to be re-roled for dismounted scenarios, this product is one of the most flexible solutions of its class. The solution is L-3 TRL’s most effective, flexible high power ECM system to date, offering maximum capability in SWaP for the ultimate in adaptable ECM.

Key Features

- Compact, integrated design for high power jamming
- Configurable and fully interoperable
- Up to 3 x 50W and 3 x 10W output power (in a three stack high band solution)
- Optimised SWaP
- Flexible configurations: one/two/three stack, high or low band combinations, active or reactive, bespoke communications filters
L-3 TRL is a company with its roots firmly in successful Research & Development projects. Our products are innovative, cutting-edge and at the forefront of ECM development. However, we also understand the importance of tailoring individual solutions to meet the specific needs and requirements of each customer.

We are committed to providing versatile solutions that can evolve as targets change and technologies advance. We have a long history of working directly with customers to design, develop and deliver tailored solutions that counter specific threats and address particular operational constraints.

The software defined architecture of our BROADSHIELD family of products enables the equipment to be re-programmed in response to emerging threats in a dynamic environment. The flexibility of our systems also ensures interoperability with additional products, providing a seamless expansion of capabilities such as tasking, spoofing and deception to meet the demanding requirements of modern day Electronic Warfare.

Our knowledge and experience in the field of ECM have evolved over 30 years of in-theatre experience, at both tactical and strategic levels. It’s this level of expertise that has allowed us to understand and create tailored solutions for customers in the constant fight against terrorism.
Overview

Award winning Electronic Counter Measures

L-3 TRL provide a wide variety of services to complement our BROADSHIELD systems and optimise the capability. All can include full warranty and support alongside comprehensive training programmes that enable our customers to maximise the efficiency and effectiveness of their investments.

Training

We have designed a variety of training courses that provide customers with essential skills and technical knowledge, enabling them to fully utilise the functionality of our equipment in a variety of tactical scenarios to optimise its effectiveness, stay one step ahead of the enemy and ultimately save lives.

With the right training, our customers will be able to respond quickly and safely against the threat of RCIEDs, utilising the field-based expertise of our training team to ensure the equipment is used to its full potential.

Support

To ensure our BROADSHIELD systems maintain optimum performance throughout the life of the requirement, our support packages have been designed to provide our customers with the complete solution from the moment of delivery.

We offer a range of services including upgrades, repair, obsolescence management and trend analysis combined with our Customer Support Helpdesk ensuring our customers get the very best after-sales service.

Consultancy

Although our training effectively addresses the need for personnel to understand, programme and deploy our BROADSHIELD systems, there is no substitute for experience. We can offer a consultative range of operational and engineering knowledge that is unrivalled in the ECM marketplace.

We can also offer information and advice on how to fully maximise each ECM solution, including aspects such as field testing, platform integration, threat specific missions and the collation and interpretation of data.

The next step...

This brochure gives you an outline view of the L-3 TRL BROADSHIELD range of Electronic Counter Measures. We also have unparalleled levels of expertise in:

SPECTRUM SURVEILLANCE

NETWORK SECURITY

L-3 TRL are committed to delivering world class solutions to support government, defence and security organisations around the world against terrorist and subversive threats.
For more information on our Electronic Counter Measure Solutions, please contact us at:

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