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Through a multi-media platform it provides a daily source of information for key decision makers throughout the Industry, with a successful and proven record, it remains our core principle to bring buyers and sellers together.

The Senior Management within the company have spent years in the publishing Industry. Customer service in advertising is often minimal, at Military Systems & Technology our philosophy remains that the client expects all year round service not simply the purchase of an advertisement.

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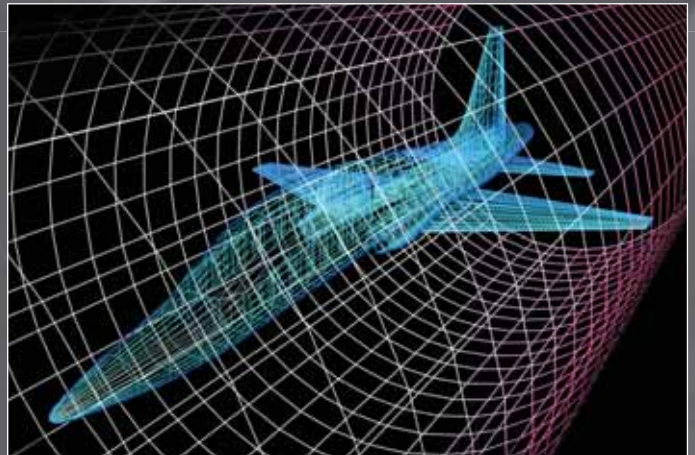
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MAKING THE WORLD A SAFER PLACE

SURPLUS AND OBSOLETE SMALL ARMS AMMUNITION DESTRUCTION

In the new global economy many Armed Forces are downsizing to reflect the budgetary constraints of their respective countries. This brings with it surplus items which, because of the reduction in the number of personnel, are put into storage until a suitable method of disposal is found. High on the priority list is ammunition of all types and nature. Small Arms Ammunition (SAA) accounts for a large percentage of any military organisation's arsenal. It also contributes significantly to the stockpile of surplus, obsolete and shelf life expired ammunition.

EOD Solutions Ltd in conjunction with CALDO engineering have developed the Transportable Ammunition Destruction System (TRADS) to destroy SAA in an environmentally responsible manner. There are two systems available, the TRADS 40 and the TRADS 20, both of which employ ceramic filtration backed up with a catalytic filter to ensure complete cleaning of the gases. Recent improvements have allowed the system to clean the gases even more efficiently to comply with EC Emissions Directive 2007 and the USA Environment Protection Agency guidelines - one of the most stringent in the world.

Both systems are constructed in ISO 20 foot container frames to allow sea and air freight delivery and vehicle transportation. The frames also allow for ease of maintenance and observation during ammunition processing. The TRADS 20 system shown here is designed to undertake medium and small-scale destruction of SAA where the ammunition is dispersed in different locations.

TRADS 20 will destroy a minimum of one and a half tonnes of ammunition per day. The system destroys all SAA and their secondary effect components except high explosive rounds and is completely enclosed to make it safe for the end user.



TRADS 20 utilises a furnace that allows small quantities of ammunition to be destroyed and then emptied into a bin for further processing such as Free from Explosives Inspection. It can then be filled again with the next batch of ammunition. Because this system is enclosed it means that the destruction process and the emptying is a continual cycle, automatic and completely safe for the operators.

EOD Solutions Ltd has recently manufactured the TRADS 20 and 40 for a client to operate in Afghanistan. The TRADS has proven itself in the most arduous of conditions over a two-year period during which time the system destroyed all types of SAA up to and including 14.5 mm ammunition.

It requires no infrastructure as electrical power and compressed air are built into the system. It can be positioned on site and can be working within 36 hours requiring only diesel fuel to begin operations. TRADS 20 is the ideal system for disposing of disbursed stockpiled SAA at an affordable cost.

www.eodsonline.com



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Custom-built marine engines and accessories covering a wide range of applications for specialist organisations including the MoD, H.M. Coastguard, Overseas Government Forces, RNLI, Police and Fire Service Search and Rescue Units. Barrus has a dedicated team that offers a flexible approach to customer requirements, providing specialist sales and applications engineering support.



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The Power Behind The Brands



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ADVENTURE LIGHTS

WHEN SUCCESS IS VITAL™



Adventure Lights Inc. is a leading manufacturer of innovative, programmable infrared beacons, vehicles IR illuminators and remote control LZ/DZ systems. For offensive and defensive applications as IR beacons, tactical tools, or soldier safety, our products are second to none. They are battle proven in (IFF) Friend or Foe ID, surveillance and covert marking operations. Together with our remote system, our beacons make for superior portable Landing and Drop Zone markers. We are especially proud to know that our products have helped save lives, and played a pivotal role in the success of numerous missions.



The smallest, lightest, most effective airfield lighting systems. Controllers can operate beacons from up to 1200 meters with extended range repeaters. A variety of kits are available to accommodate the needs of expeditionary landing zones, helicopter landing zones, parachute jumper signaling, cache, container, beach head marking and many other applications.



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20 YEARS OF BATTLE-PROVEN PERFORMANCE

Available in the United Kingdom through Thomas Jacks Ltd.

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Beacons available with:

- Programmable Mockingbird® technology
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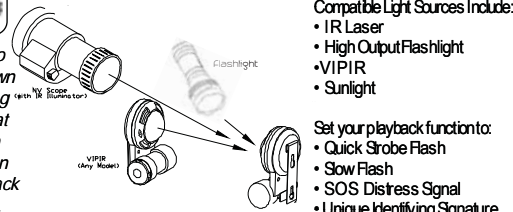
Mockingbird® Technology

Programmable with Near IR or High Output White Light Sources

Compatible Light Sources Include:

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Allows users to record their own unique flashing sequences that are saved into the VIPbeacon and played back when needed.



- Set your playback function to:
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 - Unique Identifying Signature

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DMS technologies

Reliable power solutions for Military Systems & Equipment

BATTERY SYSTEMS SPECIALISTS

Portable Power Packs

DMS technologies has a long history of supplying rugged battery packs to the UK MoD for the engine starting of the wide range of military vehicles, up to and including the Challenger main battle tank, their tank transporters as well as helicopters. There are three products in the range each with NATO codification.



Dillon MiniGun *A DMS bespoke design solution*

More recently DMS was asked to design a battery pack to provide sufficient power to drive the barrel motor and ammunition feed for the Royal Navy's Dillon Mini-Guns, allowing the vessels to protect themselves in the event of the loss of a ship's power. These battery packs, also NATO codified, are now also used by other navies equipped with the MiniGun.



Designs for maximum life, in rugged environments

DMS technologies' battery design expertise has also been called upon to provide power for security equipment such as scanners and communications where run-time whilst operating in a rugged environment is a critical factor.



What lightweight battery would meet your needs?
We will be at the DSEI show, September 15th - 18th
Come and find out how DMS technologies can help you. **Find us on stand S4-158 in the UK Pavilion**



Lightweight Lithium Ion *Battery Technology In The Field*

Whilst many on-board vehicle applications have been satisfactorily met using lead acid or NiMH batteries, the need for more complex technology being carried by the dis-mounted soldier has increased the demand for much lighter weight power.

The need for smaller, lighter-weight but powerful batteries, lead DMS to develop the knowledge and technical know-how to work with a range of lithium ion cells and batteries to design and assemble power packs to meet specific power, dimension and/or weight targets.

"The complex technology being carried by the dis-mounted soldier has increased the demand for much lighter-weight power solutions."

With a heritage in supplying military ready equipment, DMS employs both engineers and sales personnel who have a working knowledge of how to design products that are ready to be put in service on the front line. We will work with you to understand the operational requirements, as well as work through NDA's, testing, delivery schedules and through life support.

DMS technologies has already supplied both new and retro-fit battery solutions for a wide range of projects.

Case A

Extending the service life of the RAF's L-1011 TriStars, whilst awaiting the arrival of the Voyager Tanker/Transport and the Airbus A400M, was one such project. Our brief was to replace the power packs in the SARBE beacons. We designed and supplied a fit-form-function replacement in good time to ensure that the existing fleet remained operational at a critical time.



Case B

A petrochemical company needed a 21.6V 342Ah Lithium Thionyl Chloride pack, to be assembled in a hexagonal, layered format. This involved the assembly of 104 cells in three layers with each parallel string being diode protected. The system operates at a low temperature, averaging around 9°C and the load current is continuously



fluctuating. This meant extra consideration had to be taken in the design, with Lithium being favoured due to its high energy density and light weight.

Case C

An existing relationship with a switch-tripping manufacturer lead to DMS technologies being approached to build replacement

Lithium Primary

Battery Packs. Two packs were built for each system and installed using the end users existing metal work. This included

handling the rigorous UN testing, necessary for type approval.



Case D

Our design team were asked to re-engineer batteries for use with emergency lighting in a complex environment. Apart from the need to meet voltage and capacity specifications, the battery packs had to be built to very tight dimension tolerances.



Case E

Working with a leading communications company, DMS has designed and manufactured a range of portable WiFi units housed in rugged Peli cases containing 3G/4G routers, load balancing & bonding equipment and a WiFi Access Point. It's a mobile connectivity solution that can support any number of users with web browsing and email access. Each watertight, crushproof, dustproof unit is supplied with a selection of 3G/4G SIMs to ensure that you are always able to access the strongest service.



With a large manufacturing site in Hampshire, UK, DMS technologies offers both short and long production runs permitting the manufacture of any quantity from small numbers for prototype designs or small production batches to large production runs to match a roll out project schedule.

For help with your project call our team on 01794 525400, or Email: sales@dmstech.co.uk

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Limited

HIGH QUALITY, PROFESSIONAL METAL, MINE & COMMAND WIRE DETECTION EQUIPMENT

Guartel Technologies Ltd is an established company which has built its' reputation on the design, development and manufacture of high quality, professional metal, mine and command wire detection equipment, for use in Counter IED, EOD, WIT & Search operations. Guartel conducts a continuous programme of R&D to meet current and emerging threats. The company is ISO 9001:2008 registered and is security cleared by UK MoD.

Key Counter IED and Search Products

Buried/Underground Cable Detectors - WD100

The WD100, buried/underground Cable Detector is the only commercially available detector specifically designed to detect surface laid and buried command wires used to initiate Command Wire Improvised Explosive Devices (CWIED).

Military Metal Detecting Probes - MD4

The military metal detecting probe MD4 is used by many NATO countries, it is rugged and simple to use. The detection capabilities allow the operator to locate small targets and to gauge the depth and size of objects such as victim operated



switches. MD4 is self calibrating with operator zeroing function.

Military Mine and Metal Detectors - MD8+

Ergonomic, simple to use high sensitivity military metal/mine detector, the MD8+ employs the latest digital technology and high speed pulse induction which allow the detection of the smallest metallic targets.

Command Wire Detector - WD10

WD10 is a high performance passive command wire detector for use by CIED Search teams and IEDD operators. The detector is easy to use, having simple controls for power and pin-pointing a target.

Stand N6-300
www.guartel.com

Rugged Hand Held Metal Detectors - HD7

The rugged hand held metal detector HD7, is simple to use and is weather resistant and can be utilized indoors or out doors. HD7 can be used for person search, personal area search and target confirmation. Alarm modes: silent vibrate, audio, visual/audio.

New Products – MD3000 Multi Role Metal Detection Kit, designed for use by police search teams and other investigative agencies, the MD3000 is a state of the art easy to use detector. The MD3000 has two inter-changeable search heads, a halo for general area search and a probe for use in undergrowth and narrow cavities.





ROG₂

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WHEN you need it... **WHERE** you need it

The ROG™ is manufactured by Molecular Products; a global leader in chemical based technologies for the purification of air to preserve life and protect the environment.

The ROG™ is an innovative medical oxygen generator designed for medevac via air, sea and ground-based medical support teams.



- **Delivers medical grade O2**
- **Unpressurised and non-explosive**
- **Portable and lightweight**
- **Resistant to extremes of temperature**
- **No maintenance, electricity, mixing or filling**
- **Live fire, shock and drop tested**
- **Rugged in design to withstand demanding operational rescue environments**
- **Cool Touch technology**



Rugged Oxygen Generator: Minutes To Save A Life

The ROG™ is a rugged oxygen generator that gives immediate access to a life saving oxygen supply. Designed for pre-hospital casualty care in demanding environments, the ROG™ is an innovative development in medical technology that will help increase survivability of defence and security forces.

ROG™ technology has succeeded the demands of extreme environment testing including live fire, drop, shock and vibration.

In austere environments, the ROG™ enables patients to be oxygenated at the point of injury via a safe, reliable and non-explosive source. Small and light enough to be carried in a medical bag, the ROG™ does not require any maintenance, electricity, mixing or filling. Rugged in design, the ROG™ is portable, strong, durable and able to withstand robust use in rough terrain or confined spaces.

Unlike compressed medical oxygen cylinders, the ROG™ can be exposed to extremes of temperatures, operated in any orientation and has an extensive shelf life.

Unique to the ROG™ is its Cool Touch thermal management system. Unlike any other product of its kind, the technology inside the ROG™ keeps the heat inside, ensuring that the unit stays at a safe temperature during use.

TECHNICAL SPECIFICATION

Duration	15 minutes
Flow rate	6-8 litres per minute
Weight	1.6kg (3.5lb)
Oxygen purity	99.9% (USP)
Dimensions	270mm (h) x 105mm (w)
Heat insulation	Cool Touch technology
Usage	Single use
Shelf life	5 years
Certification	FDA / CE pending



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Electronic Warfare Antennas

Electronic Warfare (EW) is the use and denial of the RF spectrum to the enemy.

It encompasses long term tactical electronic Intelligence Gathering (ELINT) and the immediate protection of high value assets, such as aircraft and ships, and the protection of vehicles and foot-soldier from RF activated IEDs is critical.

EW has two distinct branches:

- Receiving and analysing the threat signal
- Countering the threat signal

All antennas used in EW systems must have wide, instantaneous bandwidth.

Ultra wideband omni and directional antennas can be used for systems for foot-soldier to ship-borne and from land-vehicle to helicopter.

Having detected RF signals associated with threats (missile, radar or IED), one possible evasive action is to deny use of the RF spectrum by countering (jamming) with appropriate levels (1 to 500 Watts) of microwave energy at the same frequencies.



Omni-directional vehicle mount antenna

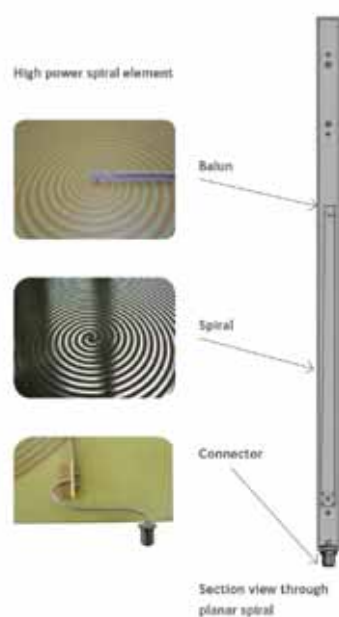
If the location of the threat is known a directional high power, high gain antenna would be most appropriate. If the direction is unknown then an omni antenna provides 360° blanket coverage.

For omni antennas peak gain must be on the horizon at all frequencies, they must be small enough to be used by foot soldiers and rugged for vehicle applications, with high efficiency to extend battery life.

Cobham Antenna Systems, Microwave Antennas has developed a portfolio of ultra-wideband omni and directional antennas from 100MHz to 18GHz to cover all of the bands in which high power amplifiers.

High Power Planar Spiral

The flat-panel, reflector-backed spiral has no absorber so it can handle up to 100Watts, fully efficiently, with up to 8dBi peak gain, giving an impressive level of EIRP for Countermeasures.

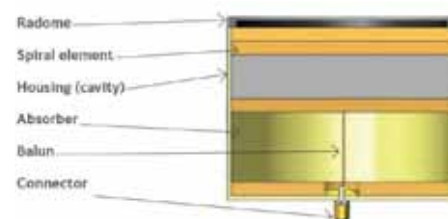


Planar spiral antenna

Circular polarisation can provide benefits where the polarisation of the threat signal is unknown.

Cavity-Backed Spiral

The cavity-backed spiral is the traditional antenna that provides very wide bandwidth, circular polarization and high fidelity monotonic patterns and is the mainstay of an EW direction-finding system for instantaneous threat analysis.



Cavity-backed spiral antenna

The spiral element comprises two parallel transmission lines formed into a planar spiral which are fed via a broadband balun, usually at the centre point of the spiral.

The highest frequency of the spiral is determined by the fineness of the feed structure at the centre of the spiral, whilst the lowest usable frequency is determined by its diameter.

Ultra-Wideband Omni

Biconical omnis are fully efficient, vertically polarised broadband antennas which have 1-3dBi gain across the band with low azimuth ripple and typical elevation beamwidths of 60°. This provides excellent coverage whatever the orientation of the vehicle or man-pack.

Being centre-fed and ground-plane independent, the peak gain is on the horizon across all bands so that high power can be delivered where needed.

For more information contact:
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www.cobham.com/antennasystems



Electronic Warfare Antennas for Critical Missions

COBHAM

The most important thing we build is trust

Specialist antenna design and manufacturing for Defence applications including detection, jamming, counter-IED and communications.

Antennas are designed and made in the UK, not subject to ITAR.

Our Products Include:

High Power Planar Spiral

- Directional, ultra-wideband
- High power
- Bandwidths up to 30:1
- Ultra-slim

Cavity-Backed Spiral

- Dual-sinuuous
- High-fidelity monotone patterns
- Direction finding systems
- Phase and amplitude matching available

Ultra-Wideband Omni

- Biconical omnis
- Fully efficient
- Vertically polarised
- Bandwidths from 3:1 to 30:1
- Multi-stacked omnis for versatile configurations

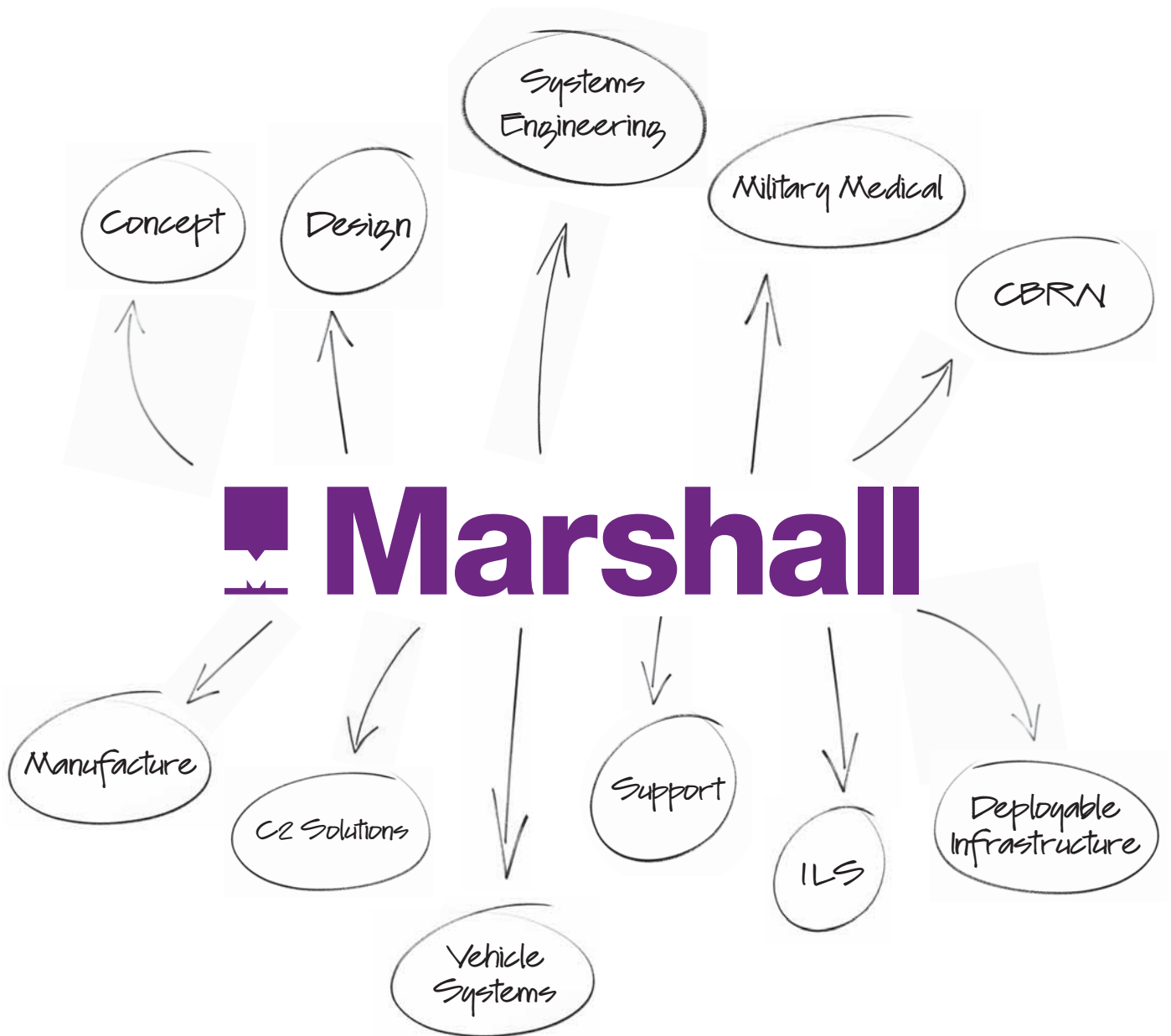
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Land Systems Capabilities

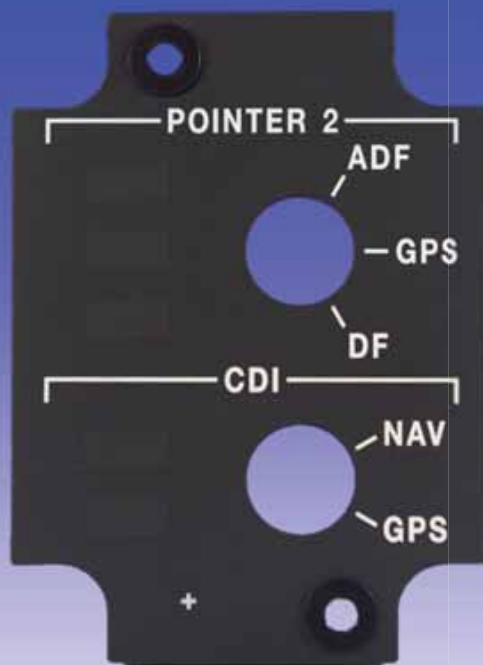


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Marshall Aerospace and Defence Group is one of the largest privately owned and independent aerospace and defence companies in the world, delivering innovation and excellence in engineering and support solutions in the air, on land and at sea.

PARAMOUNT PANELS

Instrument Lighting & Control Panels



Paramount panels will once again be participating at this year's Defence & Security Equipment International, DSEI 2015.

We will be exhibiting from Tuesday September 15th to Thursday 18th Sep at the ExCel London, and we would welcome you to visit us at our booth located in the South hall, at S2-156.

Paramount Panels will be showing an extensive range of products including NVIS LED control panels, Instrument and internal aircraft/vehicle lighting along with transilluminated control knobs.

At this year's event we will be launching our latest custom designed PWM Solid state dimmers, which is designed primarily for the dimming control of lighting sources within an aircraft cockpit, which is fully qualified to D0-160. Other benefits of our dimmer include the ability to control mixed lighting technology (LED & Incandescent) from one device, which is often the case in aircraft NVG lighting upgrades.

When visiting us at our stand, you will have the opportunity to discuss and view all of our products, and please do not hesitate in contacting us prior to arrange a specific meeting at your convenience.

Paramount Panels (UK)

Mollison House | Aden Road | Enfield | Middlesex | EN3 7SY | United Kingdom

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www.paramount-panels.co.uk

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PARAMOUNT PANELS



DESIGN & MANUFACTURE OF WHEELED ARMoured & MINE PROTECTED VEHICLES

OTT Technologies (Pty) Ltd (OTT) is a South African company located outside Pretoria. The company is in operation since 1980. OTT developed over the years from a small company that specialised in the refurbishment of surplus ex-military all terrain vehicles to its current status as a company with acknowledged engineering excellence. The current status of the company is an ISO 9001 certified company that still re-manufactures surplus ex-military all terrain vehicles and also designs and manufactures new wheeled armoured and mine protected vehicles.

OTT has two main business streams, New armoured vehicles and Refurbished Vehicles. A secondary business stream is the supply of new

and refurbished original spares for Samil trucks, Casspir MPV's, Mamba MPV's, Ratel APC's and older generation Unimog trucks.

New Armoured Vehicles

OTT designs, develops and manufactures wheeled armoured and mine protected vehicles. Our vehicles are used by police, military, peace keeping forces and security companies for the safe transportation of personnel and assets in transit. The current products of OTT Armoured Vehicles are:

Protector M21 Modular Armoured Vehicle
The Protector MAV is built on a commercial truck driveline. The maximum gross vehicle

mass is 13 ton with a 4,3 ton payload. The Protector can be configured as an armoured personnel carrier (APC), assets/cash in transit vehicle, ambulance or command and control vehicle. It is available in 4x2 and 4x4 configuration with Right Hand Drive steering. The basic crew consists of a driver and commander. Up to 10 additional passengers can be carried. Main users are police, security companies and cash in transit operators.

Protector M22 Light Modular Armoured Vehicle (LMAV)

The M22 LMAV is built on a commercial truck driveline. The maximum gross vehicle mass is 7,5 ton with a 2,4 ton payload. The M22 can be configured as an armoured personnel carrier (APC), assets/cash in transit vehicle, ambulance or command and control vehicle. It is available in 4x2 configuration with Left or Right Hand Drive steering.

The basic crew consists of a driver and commander. Up to 10 additional passengers can be carried seated back-to-back or 9 facing linear with the direction of travel. Main users are police, military, security companies and cash in transit operators.





Marrua M27 Light Armoured Patrol Vehicle (LAPV)

The Marrua M27 is a light armoured patrol vehicle with a crew of 4. It is built on an Agrale Marrua AM200CD chassis and is supported through the Agrale distributor network. The M27 LAPV is primarily designed as a patrol and general utility vehicle protecting the crew against small arms fire and side blasts from Improvised Explosive Devices (IED's).

It can also be configured as a reconnaissance and surveillance vehicle, tactical command and control vehicle as well as a light cash in transit vehicle.

Puma M26 Mine and Blast Protected Vehicle (MRAP)

The V-shaped hull Puma M26 4x4 is an armoured personnel carrier (APC) with mine and IED protection. It is built on a commercial truck driveline. The main users are military, police and security companies during peace keeping, homeland security and other asymmetric warfare operations.

Other roles include, high mobility mine protected patrol vehicle, tactical rescue/ambulance, mine protected weapon carrier and mine protected tactical command vehicle.

Puma M36 Mine and Blast Protected Vehicle (MRAP)

The V-shaped hull Puma M36 4x4 is an armoured personnel carrier (APC) with mine and IED protection. It is an evolutionary and larger extension of the Puma M26 and is also built on a commercial truck driveline. The main users are

military and police during peace keeping, homeland security and other asymmetric warfare operations.

The Puma M36 family consists of an APC without armament, APC Patrol with a light manual turret, command vehicle, ambulance with 4 stretcher patients and 6x6 recovery vehicle all sharing the same automotive components.

Land Cruiser M40 Light Protected Vehicle

The Land Cruiser M40 light protected vehicle is used for Cash in Transit and transportation of security personnel. It is based on the Toyota Land Cruiser Series 79 pickup truck. It carries a crew of 4 (driver plus 3) with a payload of 300kg for assets or an additional 4 passengers on the open rear bay.

Refurbished Military Vehicles

OTT also specialises in the re-manufacturing of ex-stock all terrain military and police vehicles

and is internationally well known for these high quality vehicles. Customers include the Africa Union, Nepal, various NGO's as well as various African Governments, mining houses and other private customers. The product lists includes Ratel APC's, Samil 20 Hunter SOV, Samil logistic trucks, Casspir mine protected vehicles, and Nyala RG12 police APC's.

Ratel 6x6 Armoured Personnel Carrier (Refurbished)

The combat proven Ratel 6x6 is known as a robust and reliable armoured vehicle that proved itself during operations in Southern Africa. The APC has a crew of driver plus 8. The Ratel can be fitted with a variety of weapon systems including 90mm gun, 12,7mm machine gun, 14,5mm machine gun, 40mm automatic grenade launcher or even with an anti-tank guided missile in the tank hunter role.

Samil 20 Hunter Light Strike Vehicle (Refurbished)

The Hunter LSV is based on the proven Samil 20 high mobility truck. It is mainly used by special operations or light strike teams where surprise, situational awareness, fire power and a highly mobile and robust platform are essential for combat survivability. It has a crew of driver, commander and 5 gunners. The weaponry consists of a 12,7mm or 14,5 mm machine gun plus three 7,62mm light machine guns to provide all round fire power.





Samil 20 All Wheel Drive High Mobility Truck (Refurbished)

The Samil 20 is known for its extreme off-road mobility, robustness and reliability.

It has a gross vehicle mass of 7700 kg and can carry a load of 2690 kg. The Samil 20 is available as personnel carrier, light cargo vehicle, field ambulance, light workshop vehicle, light fire tender, etc.

It is a highly versatile platform.

Samil 50 All Wheel Drive Tactical Truck (Refurbished)

The proven Samil 50 is known for its excellent mobility, robustness and reliability. It has a gross vehicle mass of 12400kg and an off-road payload of 6000kg making it the ideal tactical logistic truck. It can be used as a personnel carrier, cargo vehicle, fuel or water truck, workshop and maintenance vehicle, fire tender, etc.



Spare Parts

OTT has large stocks of new and refurbished spare parts for Ratel, Samil trucks, Casspir MPV's, Buffel MPV's, Mamba 4x4 MPV's and Unimog 416 trucks.

Samil 100 6x6 Logistic Truck (Refurbished)

The Samil 100 is like all the other Samil trucks also known for its excellent mobility, robustness and reliability. With a gross vehicle mass of 21 ton and a payload of 12 ton it has various logistic applications in tough environmental and operational conditions.

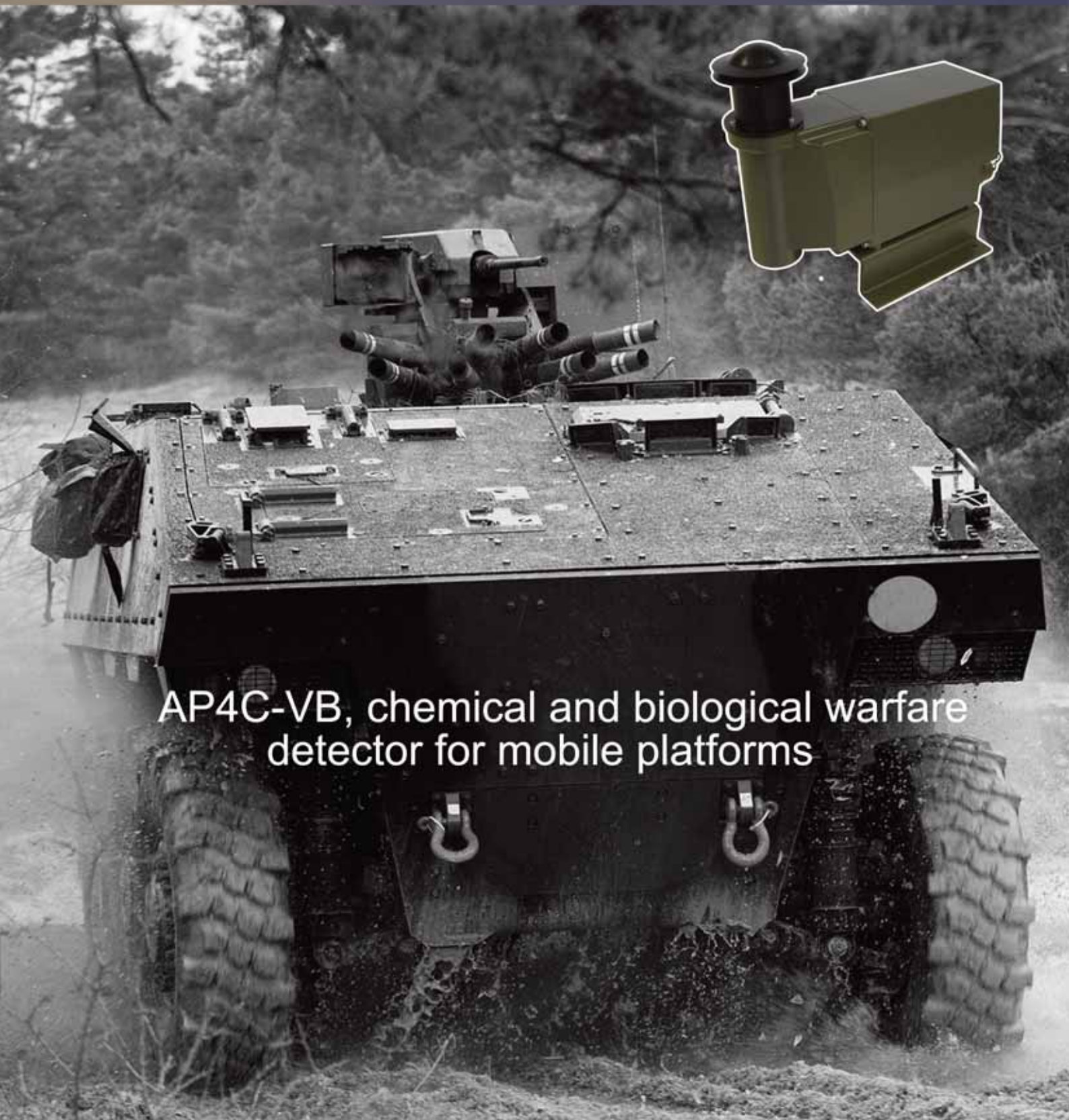
OTT Technologies Customer Profile - OTT has supplied quality remanufactured and new vehicles to various discerning customers including:

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- **Mining houses and security customers.**
- **Non-governmental organisations mainly for humanitarian roles.**
- **Troop Contributing Countries for deployment in MINUSMA, Mali.**
- **M22 Light Modular Armoured Vehicles to cash in transit operators in Nigeria.**



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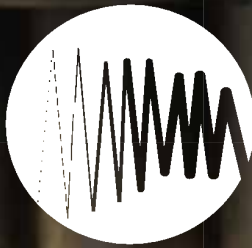
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KEEPING THE SHARP END OF THE OPE

Demand forecasting in defence has been for the most part, based on past consumption - a bit like driving forward by looking in the rear-view mirror, explains Jeff Pike, Head of Strategy and Marketing for the IFS A&D Centre of Excellence. The result has been costly, often with expensive overstocking, and in a fast moving theatre, 'just too late' or 'just in case' rather than 'just in time'. Commercial enterprises on the other hand have been far more transformative in their approach to demand forecasting, using advanced cognitive analytics or 'machine learning' to exploit the data it holds. The next step for supply chain strategists in defence is to use probabilistic analysis to inform its day-to-day demand forecasting. Jeff Pike explains just what this is.

Most defence demand forecasting has traditionally looked backwards at empirical data to identify future consumption. But actual defence demand patterns often look more like chaos than linear, predictable requirements. They are increasingly influenced by multiple internal and external factors that drive them up and down in ways that can't be understood by simply looking at past campaigns and wars.

DEFENCE FORECASTING - WHY SO DIFFICULT?

In Aerospace and Defence (A&D), the gold standard has been not deterministic, but Stochastic/Probabilistic optimisation of logistics and its end-to-end supply chains. This has primarily been focused on Initial Procurement (IP) and on rotables/repairables as this is where the big dollars sit.

As more Original Equipment Manufacturers (OEMs) look to move from manufacturing to through-life support operations, the need for better through-life demand forecasting - driving profitability from the minimum inventory whilst maintaining or even improving acceptable service levels - has increased. Optimised inventory holdings have gained a greater commercial impetus, and the old 'run IP and let the users buy sustainment stocks' process just won't do if profit margins are to be maintained.

The traditional deterministic approach simply does not survive the analysis of the maths.

ENTER PROBABILISTIC ANALYSIS

Probabilistic analysis has the potential to provide model outputs in various ranges of figures with calculated degrees of confidence, and takes into account imprecision and uncertainty when appropriate. Factoring in the probabilistic impact of variability in demand or supply plans in recommending inventory levels, accounts for the likely variation across a range of factors that make up the demand forecast - rather than simply multiplying past performance by a set number.

The ultimate aim is to balance investment in inventory against the resultant improvement in service levels. The bottom line is 'the graph' is not a straight line but more continuous probability curves. This model has already been used successfully in the commercial sector and there is a lot to learn from this.

HOW CAN DEFENCE LEARN FROM PROBABILITY IN THE COMMERCIAL SECTOR?

The military's perception of commercial manufacturers and suppliers is that they have it easy. They can choose, and know their markets and customers, a luxury the military don't often have with their enemies. Unlike those in uniform, commercial enterprises are not subject to short-notice unexpected exercises and operations brought about by external political decisions. They are not constantly introducing new equipment with different support packages. They don't have to grow new, complex supply chains to cope with new theatres of operations.

But there are similarities between what defence consider to be their special challenges, and those experienced by a series of real commercial enterprises.

1. Short Notice Exercises and Operations - Some commercial enterprises typically run thousands of consumer promotions a year - these can be compared to the changing consumption patterns caused by military activity. One such company's marketing effort creates unusual forecasting scenarios for 30-40,000 individual stock numbers, each in effect with their own 'promotion' or changed consumption pattern. It is vital to commercial survival that firms forecast the uplift in demand well.

2. New Equipment Lines and Upgrades - One global electronics distributor routinely has 500,000-plus in-line items - this aligns with figures for the UK MoD, which must manage an inventory of 900,00 different lines. The company introduces 5,000 new products every month and fulfills more than 44,000 same-day orders every day from its operations in 32 countries. Predicting demand for such a vast array of new products is more than any demand planner can reasonably be expected to handle, especially if systems can only look at their own past consumption patterns for similar products.

3. Increasing Operational Complexity - A US manufacturing firm had to manage a rapid expansion of its distribution network while introducing regional distribution centers to its supply chain structure. Like the military engaging in a new operational campaign, it had to implement this change while maintaining high service levels.

These commercial organisations acted rapidly to implement a probabilistic approach - something defence logisticians can learn from.

NOT TOO LATE, RATHER, JUST IN TIME

The companies in the scenarios above all had complexity and scale that made it impossible for their demand forecasters to plan accurately, much like we see in the defence sector. Current deterministic forecasting systems are just not accurate enough, so planning staffs only engage at the end of the process to put right clearly inaccurate stock levels.

This leads to inefficient 'fire-fighting' to meet priority requirements rather than inputting the required factors

RATIONAL SUPPLY CHAIN SHARPENED

and drivers at the start of the process. While market or 'operational' feedback is valuable, constantly manually adjusting forecasts leads to bias introduced by human opinion and lack of trust in the system.

What should be a scientific process rapidly descends into a 'blame the supply chain'. The result is inappropriate over-provisioning and continued poor demand satisfaction as the next problem is uncovered.

The solution adopted by all of the commercial companies above was to turn to a flexible probabilistic analytics model in their day-to-day operations, rather than simply IP and initial stocking. This improved their forecasts, reducing inventory costs and increased service levels. It also reduced the burden on their demand forecasters and inventory planners who were able to concentrate on providing world-class solutions, rather than producing expensive fixes for stock shortages.

THE 'JUST IN CASE' SCENARIO - PROBABILITY IN ACTION!

During the 2003 invasion of Iraq, the commander of a coalition Armored Division demanded that the equivalent of five 'turret loads' of ammunition be positioned forward in the theatre of operations for each battle tank and armored vehicle. Simple operational planning and the number of available targets indicated that this was too much ammunition by a significant factor. All of this ammo would need to be moved, maintained and accounted for. With no trusted science to back up the logistic experts' assumptions - twenty year old staff tables and inherently conservative planning tools designed nearly forty years before were used. When the smoke cleared, and the Armored Division vacated the battlefield, the logisticians had to recover and return or destroy the equivalent of more than one turret load per armored vehicle in theatre.

This is a perfect example of how poor deterministic forecasting erodes confidence in the supply system, leading to inflated safety stocks and over-demanding at the front-line. It is clearly time to consider the adoption of non-deterministic technology in support of their demand forecasting staffs.

WHERE NEXT - ENTER MACHINE LEARNING

Probabilistic systems have traditionally had challenges around the theoretical and practical problems of data acquisition and representation. The next step is to understand what is happening at each stage of the supply chain and at all inventory locations rather than taking a simple 'whole inventory' view. With more granularity, the factors that are relevant and actually make a difference can be separated out from the 'noise', and issues such as differing velocity at various points in the supply chain can be taken into account in the analysis.

Enter machine learning. This is a computer-based discipline in which algorithms can actually 'learn' from the data. In simple terms, machine learning systems capture and model all of the relevant factors that shape demand whilst filtering out, or ignoring, random and unpredictable fluctuations - noise.

Because of this, they can manage forecasting models that use many different types of data, just like those in defence. Once the system knows which indicators can be related to success, it will update the model over time and change alongside behavior. In defence, this could be linked to higher operational and maintenance schedules so that detailed future consumption patterns can be forecast.

The overall aim must be to model the real life world and to improve operational performance, rather than re-engineer it.

REALISING THE BENEFITS

But to realise the benefits of moving from a deterministic to a probabilistic approach, or even to machine learning, and drive the forecast into day-to-day processes and avoid leakage of strategy, organisations need to integrate this approach with a modern, agile application with enterprise breadth. The approach also needs to be linked to the MRO processes, which generate much of the demand, so it becomes a two way process.

The agility of modern Enterprise Resource Planning (ERP) software such as IFS Applications with its inherent modular capabilities removes the time and pain required to adapt new processes compared to traditional, more monolithic ERP systems. These ERP solutions are designed to rapidly adjust to developments in technology. The breadth of such a solution enables reliable and accurate forecasting information to be fed back into planning, projects and operations within the enterprise solution. This allows optimisation of the end-to-end maintenance process and parallel actions across the wider organisation, making life easier for the equipment managers, enabling them to understand the effects and impact of demand drivers such as operational plans and new product introductions, as well as implementing a more efficient and effective support chain.

Perhaps at last, the right stock, in the right amounts, in the right place - at the right time.



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OPTICAL EXPERTISE EMPOWERS MISSION SUCCESS

Qioptiq, an Excelitas Technologies company, designs and manufactures photonic products and solutions that serve a wide range of markets and applications.

Innovation is a key attribute of the success of Qioptiq along with highly skilled and motivated engineers and designers who are customer focused. With world class capability in design, coupled with international award winning

technical achievement, Qioptiq has demonstrated repeatedly an ability to convert technical innovation into producible cost-effective designs.

Where the war-fighter is concerned Qioptiq has long recognised that new product development is crucial in maintaining the capability of a decisive fighting force. For the Special Operations element of that force ensuring

mission success through innovative technology applications is vital especially as operations shift from Afghanistan and previously Iraq to new territory and an adaptive evolving enemy.

To stay ahead constant innovation, research and technology is important, allowing engineers to consider the challenges of tomorrow and respond through an innovative approach. With a number of potentially revolutionary

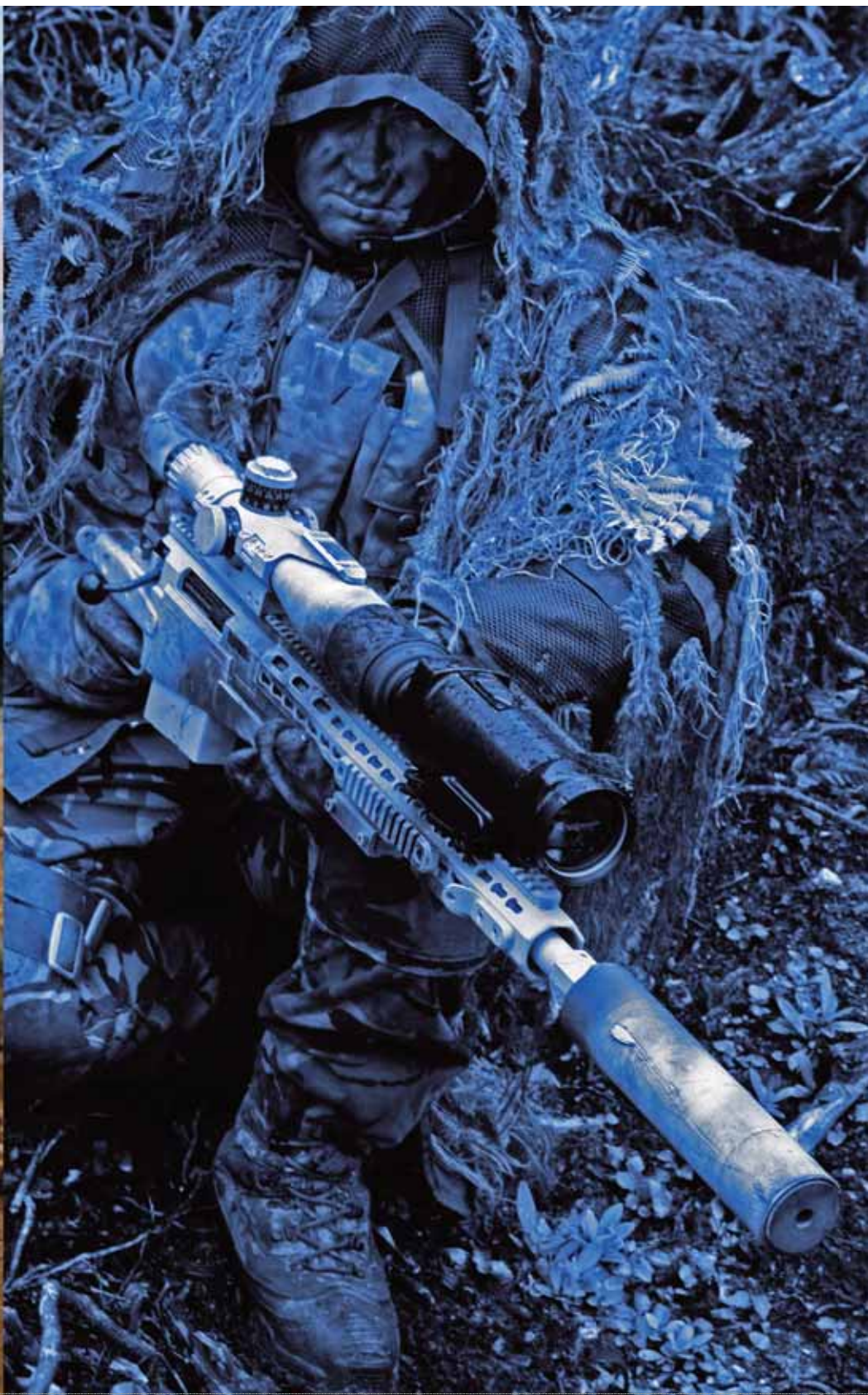
capabilities emerging as key enabling technologies the roadmap for Surveillance, Target Acquisition and Engagement is becoming increasingly interesting - with significant enhancements in sighting system capability through technology evolution and deeper integration.

Craig Taylor, Qioptiq, commented: "Capturing new technological developments and successfully exploiting them is not a new

concept. However, what is important is constantly considering new opportunities and adapting our approach. In a changing market, what's important for our customers is our ability to deliver world-leading products that are effective, efficient and adaptable."

When considering soldier and vehicle systems, one is likely to find high performance optics from Qioptiq. A flexible approach during design is matched with capability, providing integrated

optical solutions with any sensor technology currently available. With a combination of dynamic engineering, manufacturing expertise, motivation and reputation, Qioptiq has the total capability to provide some of the most innovative and focused optical solutions to today's technological challenges. From boots on the ground to eyes in the sky Qioptiq capabilities are enabling mission critical systems and platforms in some of the harshest environments on the planet.



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Cinch Connectivity Solutions Gains MIL-83526 Qualification for Expanded Beam Fiber Optic Connectors



subsea & energy production, industrial & transportation communication and broadcasting entertainment links are just a few of the vast range of applications the connectors are used.

Qualification to this standard reinforces the credibility of the entire CCS expanded beam range, from single channel connectors up to 24 channels, in both multimode and singlemode and fiber/copper hybrids. When coupled with the CCS Stratos line of rugged active optical transceivers, media converters and optical flex circuitry manufactured out of their Melbourne FL, USA facility, specifying board-to-board active and passive harsh environment components for a fiber optic network has never been easier.

Cinch Connectivity Solutions (CCS) is pleased to announce the qualification of their Fibreco Junior connector to the U.S Military MIL-DTL-83526/20 and /21 standard. The qualified connector, "MIL-Junior" further enhances their already world leading range of expanded beam fiber optic connectors, used in many harsh environment applications across the globe.

Industries such as military field deployable systems, radar & sat-com installations, offshore,

Key Features of the MIL-Junior are:

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- Compatible to existing MIL-83526/20 /21 qualified and derived connectors
- In accordance to DLA DWG 10023 (MFOCA) multimode/singlemode dual wavelength connectors

- German Defence Standard VG 95319-100 & 102
- Supplied in kit form, terminated harnesses or reels, from the UK or USA
- Field terminable with standard tooling
- Superior cable retention mechanism
- Compatible with industry standard cables
- For use in extreme operating conditions

Qualification to this standard demonstrates the high bar Cinch sets for all its expanded beam connectors from both the Fibreco and Stratos brands. Combined with our high quality, short lead-times and excellent engineering support, Cinch is firmly positioned to bring this great technology to many applications and markets to come.

Contact Cinch Connectivity Solutions directly:
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Rubb's team of military building specialists are looking forward to meeting top-level international military staff, procurement officials, and supply chain key players, from large prime contractors to military suppliers, at the forthcoming trade show in September.

Rubb's Expeditionary Forces Aircraft Shelter System (EFASS) is designed to be rapidly deployed, providing reliable, durable and field maintainable fabric engineered structures for difficult terrain and harsh climatic conditions. Demountable, relocatable and reusable, EFASS aircraft hangars, sunshades, shelters and warehouses are available in three spans with multiple door options. Rubb Military fabric buildings can be equipped with gantry crane technology. Structures pack into 20ft ISO containers for transport.

Recent projects include three new 20.4m span x 12m long EFASS structures (aluminium framed,



fabric covered aircraft shelters) for the Lithuanian Air Force, a 20m span x 40m long storage and maintenance hangar for all terrain armoured vehicles at a British Forces base in Bielefeld, Germany and seven 20.4m span EFASS structures featuring Trident doors at each gable end for the UK MoD.

Rubb Managing Director Ian Hindmoor said: "We are keen to meet personnel who could benefit from the unique capabilities and rapid deployment features of our fabric military structures. We would like to share our experiences, technology news and latest case

studies to help them meet their expeditionary and field infrastructure requirements."

To find out all about Rubb's latest developments, new products, military building projects and news you can visit Stand S4-172 on the ADS UK Pavilion, between 15-18 September at ExCel London.

Learn more about our high quality, trusted rapid deployment military buildings and how they can be installed quickly and safely to protect your personnel, operations and vital assets in the field.

Visit **www.rubbmilitary.com** for more information.



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WEW's range of systems stretch from small 500 litre units able to be carried on a Light Protected Patrol Vehicle through 10-13,000 litre DROPS systems in service with 13 nations, as well as base storage and dispensing units of over 60,000 litres which are currently being delivered to clients in the Middle East. The fuel systems can be fitted with a variety of pumping and filtration systems depending on usage. The water systems can have chlorination, reverse osmosis, filtration, heating/cooling and pumps, in both cases making the units truly stand-alone systems.



WEW in Germany has a history of providing military and commercial refueling systems based on over 50 years' experience of transporting chemicals and other liquids across, land, sea, rail and sometimes in the air, where the need arises.

Over 25 years' experience

The company supplied its first fuel and water transport systems for military use in the early 1990's for the Bundeswehr, when it deployed to Kosovo. We provided both water storage units fitted with purification systems and high mobility fuel tanks carried on RMMV Man 8x8 trucks. These are now coming back to our facilities in Weitefeld for refurbishment and another 20 or more years' service.

Since then the company has provided water and fuel systems to a number of NATO and European countries including the US and the UK. In the case of the US, working in partnership with our local partner, the team delivered over 1,200 "Hippos". These consist of a 2000 US gallon water tank and a pumping and purification system all fitted within an ISO container sized frame and including a PLS or DROPS hook so that they can be easily transported on the US Army's Oshkosh HEMTT or PLS (Pallet Loading System) all-terrain heavy lift vehicle.

WEW's experience in providing water refueling solutions led to us providing a trailer based unit for the US Army. WEW worked with the prime, Choctaw Defense, to develop an upgraded trailer mounted company-level, 800 US gallon, water supply system. This has been developed to be compatible with the refurbished ubiquitous M-1095 MTV trailer. WEW are also in active discussions with a number of forces towards the replacement of the Bison water trailer, again using a modular approach.

For the UK we supplied the Fuel Dispensing Rack under a UOR contract. These units are fitted with DROPS bail bars and designed to be carried on the UK's RMMV MAN Support Vehicle. They are not just a tank but a complete "Drop & Go" refueling system complete with a pump and its own generator, as well as a fully environmentally-compliant self-bunding system

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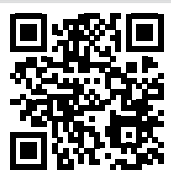
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Hostile conditions call for the reliability of Mariner





British Antarctic Survey (BAS) has a long and distinguished history of carrying out research and surveys in the Antarctic and surrounding regions, undertaking most of the British research on the frozen continent.

Their requirements are very specific when it comes to specifying the choice of RIB and engine for their important work in such extreme conditions, which is why they rely on the support of Humber RIBs. Humber has a wealth of experience in the supply of RIB's to commercial survey organisations and universities.

Rob White, Senior Marine Engineer for BAS explains the considerations when choosing a suitable engine. "We have two main issues with engines for the boats that we use; the first being able to start them in cold climates and the second is to reduce emissions whilst operating south of 60 degrees in the Antarctic territories."

"The choice between a cleaner 4-stroke and an easier starting 2-stroke has to be weighed up. Our boating operations below 60 degrees, within the Antarctic territories, are less frequent,

and the risks of a non-starting boat could be quite severe in such hostile areas. Consequently, we have chosen the 2-stroke over the 4-stroke engine. The size of the engine is a compromise between having enough power to operate in and around the island bases, where kelp beds can be quite large, and being able to manhandle engines on and off boats whilst on deck. The evolution over a 25-year period and the importance of reliability has led the ships to choose Mariner 40hp, 2-stroke engines, which also have the advantage of being lighter than a 4-stroke of the same size."

The RIBs transport passengers or cargo to island bases that have no other means of access and the inflatable boats are used for deploying science parties on islands around Antarctica that are uninhabited. The Humber inflatable boats have evolved in design to the present day with additional strengthening and support to enable the operations in these extreme conditions.

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The JPA Armouring® / Fahrzeugbau Stadthagen Armoured Toyota Land Cruiser LC 76 Multi Utility Vehicle

This armoured vehicle based on a Toyota Land Cruiser LC76 is a discrete, fast and agile way transport up to 9 soldiers at once without being noticed by the enemy or civilians. With its superior off road skills this vehicle can manage to keep moving in a wide range of terrains.

The JPA Armouring® / Fahrzeugbau Stadthagen Armoured Toyota Land Cruiser LC 78 Ambulance

Based on the Toyota Land Cruiser LC78 with an extra Turbo built in this vehicle makes the perfect base for our special armoured ambulance vehicle. Provided with medical equipment especially fitted to the clients need and his field of action.

JPA Armouring® / Fahrzeugbau Stadthagen Qualifications

• JPA Armouring® / Fahrzeugbau Stadthagen is fully ISO certified and fulfils all international compliance, equality and environmental standards.

• JPA Armouring's® / Fahrzeugbau Stadthagen's main aims are Quality, Reliability and Durability



which is guaranteed through the rigorous quality control procedure each and every vehicle has to withstand during the manufacturing process.

• JPA Armouring® / Fahrzeugbau Stadthagen Vehicles are tested and fully approved to the latest International VPAM BRV2009 & STANAG ballistic and blast requirements and fully certified by the internationally recognized institutes: "Beschussamt Germany and QinetiQ UK".

• JPA Armouring® / Fahrzeugbau Stadthagen Vehicles meet International and European road safety Standards approved and certified by: "TÜV Germany and Millbrook Proving Ground UK".

JPA Armouring after sales service

• JPA Armouring® / Fahrzeugbau Stadthagen after sales team provides technical advice, after sale service and Spare parts delivery worldwide.

• JPA Armouring® / Fahrzeugbau Stadthagen provides armoured vehicle spare parts and OEM vehicle spare Parts for shipment to any destination

• JPA Armouring® / Fahrzeugbau Stadthagen Technical Specialists are available for technical Advice at any time. JPA Armouring / Fahrzeugbau Stadthagen can also offer an after sales maintenance and support package can be planned for each customer/armoured vehicle/ location at the time vehicle is ordered (details on request).

www.jpa-armouring.com



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Design, integrate, build and support, the Marshall focus

DSEI is an important date in the defence calendar and one which focuses the mind, for Marshall Aerospace and Defence Group it is no different.

The company will be focusing on how it designs, builds, integrates and supports equipment and systems. These systems cover deployable camp infrastructure, C4ISR solutions, deployable medical systems, CBRN protection, laboratories and forensics, vehicle systems and support.

Camp Infrastructure

Our definition of camp infrastructure covers a range of military shelters used for workshops, ablutions, catering, water purification and armouries. It also includes expeditionary camp infrastructure which may well be a combination

of tents and shelters. Since Marshall began producing shelters in the 1950's we have built over 5000 units in over 300 variants for military customers across NATO and other defence forces.

C4ISR

Our C4ISR solutions involve integrating complex electronics such as radars, electronic warfare equipment, and ground control equipment for UAVs into shelters, where the company's proven systems engineering skills are exploited to the benefit of our customers.

Military Medical Systems

Our knowledge of medical solutions has been proven through the supply of CT Scanners to the UK, Norway and France, in the case of the

latter five of these units have now been supplied under a NATO framework agreement. Working in partnership with Philips Healthcare we have integrated the scanner into a deployable shelter and the system is uniquely designed to be providing diagnostic information within only a few hours of arrival on site. Our medical solutions cover from what used to be called the Regimental Aid Post back to full blown field hospitals where full diagnostic, surgical and intensive care facilities are available. These can be utilise shelters, tents or a combination depending on the size and use.

Forensics and Laboratories

Evidence, especially in today's asymmetric warfare environment, plays a vital role in intelligence gathering. Historically this has had



to be done by bagging and then transporting it back to a home country for analysis, which added considerable delay. Through our understanding of clean environments we have developed a shelter based forensic system which consists of all the elements a scientist working in a permanent facility would expect. We have extended this capability into laboratories required in the medical world.

Vehicle Systems

Vehicle systems have been part of the Marshall pedigree ever since the company began at the beginning of the 20th Century. During this time we have been responsible for turning the ubiquitous Land Rover into an ambulance, putting the load bed onto the UK MOD's present support vehicle and more recently working with partners to provide vehicle mounted GeoIntelligence systems, air defence command and control and armoured ambulances.

CBRN

Underpinning our work are two elements which can apply across all areas. The first of these is CBRN protection where with our supply chain we provide full protection including decontamination. Working with our customers we design and integrate a solution which matches the requirement.

Support

Our support work includes all those things that you would expect such as warranty work and training but where we differ is through our work assisting our customers to manage their fleets of assets such as shelters.

Consolidating support, maintenance of its extensive shelter fleet, reducing the number of contracts, reducing costs and still providing the best possible service to their Front Line Command customers were key elements to the United Kingdom Ministry of Defence launching Project Amphora. Five Design Authority roles and nine in-service contracts, many of which were coming to an end, have been brought together into one all encompassing framework comprising core Contractor Logistics Support (CLS), set-price call-off tasks, spares and variable price tasks covering diverse activities including ad hoc repair, post-deployment regeneration, upgrades and re-roles.

Stand number S3-310
www.marshalladg.com



Technologies for air purification

Atmosphere conditioning

Emergency oxygen

CBRN filtration



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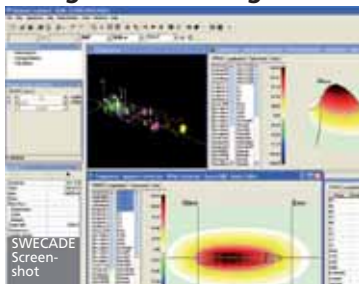
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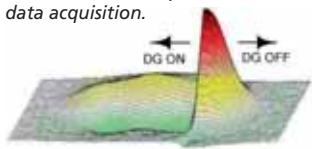
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SWECADE Screenshot



San Antonio class

Degaussing Systems



CVN 77

Polyamp implement a modular design philosophy and offer several types of ADG equipment for all types of vessels. A good example of a project where Polyamp designed and delivered the ADG is the USN Carrier CVN 77 and the RSwN Visby class.



Typical System layout

An Advanced Degaussing Systems (ADG) with a full 3-dimensional coil arrangement supplied by distributed Bipolar Amplifier Units (BPAU) is required to meet modern performance requirement(s).

A computerized Degaussing Control Unit (DCU) controls the amplifiers with input from Magnetometer and Navigational data for worldwide operation.

Underwater Signature Measurement Systems



Typical System layout

UMISS MkII is base for a family of Multi Influence Sensor System solutions designed to measure Underwater signatures. The Sea Module is equipped with Magnetic, Electric, Pressure, Acoustic and other sensors. Underwater signatures measured are used for fixed and mobile ranging and harbor protection as well as self ranging systems such as **POLYSER**®.



Minimal UMISS System MkII

Proven System



Typical centralized ADG System



Polyamp ADG on the RSwN Gotland class



Polyamp ADG on the RSwN Visby class



Polyamp ADG on the RDN Absalon class

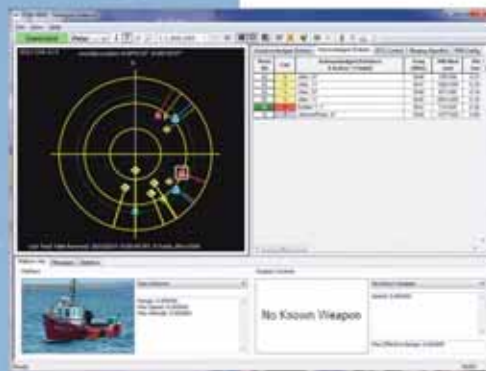
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Peli-Hardigg launches the NEW MiniRack Container at DSEI



Superior compact mobility and rugged protection for rack mountable equipment.

Peli-Hardigg™, the world's largest manufacturer of Military and Aerospace approved reusable plastic shipping and storage containers, presents at DSEI Show (Stand N6-190) the New 19" shock mounted MiniRack Container, a lightweight solution that offers superior compact mobility for rack mountable equipment and is designed to meet military standard requirements.

The new MiniRack answers the need of making the most of limited space, while providing rugged protection to the equipment. The

lightweight, compact design of the MiniRack double ended cases, offer light to medium duty protection and boast industry leading shock performance.

It's angled precision-engineered elastomeric shock mounts are fine-tuned to match the weight and fragility of your equipment, ensuring maximum shock and vibration isolation. The high-strength, lightweight, heat treated, square holed steel rack frame of the MiniRack provides a range of mounting options for single or multiple fragile equipment, IT and Communications, electromechanical devices, servers, military mission planning tools, command and control equipment, flight simulators, aerospace instruments, memory storage devices, mobile operations, ground controllers, among other applications.

Manufactured entirely in Europe, the new MiniRack is designed to meet the requirements of NATO and European military standards. Available in 10 different models, with frame heights from 4-12U and two depths of 480 and 610mm, it has all the features that rack mountable equipment need for protection.

Highlights of the MiniRack container:

- High-strength steel rack frame supports equipment from 10-50 kg
- Peli-Hardigg's patented, wide-design, Comfort Grip Handles™ make lifting easy

- Patented, positive anti-shear interlocks minimise stress on hardware and prevent case lids and bases
- from separating, even after impact
- Moulded-in, tongue-ingroove gasketed parting lines seal tight and remain so after impacts
- Designed to meet ANSI/EIA-310-C for universal rack mounting hole pattern
- Inter-stackable design
- Over 12 colours to choose from

The MiniRack offers multiple accessories and options to adapt it to the different needs of customers including custom labels, drawers, shelves fixed and sliding, interlocking plates, padlock hasp, among others. With the new MiniRack Peli-Hardigg enables sophisticated electronics to be deployed in any environment, and when it comes to transporting and protecting equipment in use, nobody matches Hardigg's experience or dedication.

For more information, please contact:

Peli-Hardigg UK Case Center: Hardigg UK Ltd.
Unit 4, Brookfield Industrial Estate | Leacon Road
| Ashford Kent TN23 4TU (UK)



Protect your precious Drones and UAVs with Peli's practically indestructible Cases



Tel +44 (0) 1233 895895 Peli™ Products, the global leader in the design and manufacture of advanced portable lighting and high-performance protective case solutions, offers a wide range of transport solutions for the

extreme protection and safe handling of drones and UAV systems, from highly sophisticated military UAVs to consumer devices that video enthusiasts and hobbyists can acquire.

For taking pictures and videos of amazing landscapes or for critical missions and military operations, drones and UAVs are getting popular by the day. Uses and markets for these devices are unlimited, however they do have in common certain fragility when transporting it.

"At Peli Products we have been providing bespoke cases for Military Special Operations UAVs for some years now" said Piero Marigo, Peli Products EMEA Managing Director. "The expertise of our Engineers in designing protective cases of impact-resistant exterior with fully customizable interiors adaptable to the drones sizes and parts, makes Peli the perfect choice in the market."

In regards to Peli Cases versatility for transporting drones into the most remotes places of the Earth, Piero Marigo added: "Peli Cases have been thrown out of helicopters, floated through frigid fjords and rolled over by

SUVs while contents inside were left unscathed. All Peli Cases are about getting your equipment intact and functional from one point of the World to another, and our years of experience combined with a strong reputation of manufacturing the toughest Protector Cases in the world, guarantee it."

Wide offering of Peli Cases for most drone models

Peli Cases full range of 80 models are impact-resistant, shock-proof, watertight, dust-proof



and offer adaptable interiors of customizable foams that guarantee the safety of the equipment in any kind of trip, even when travelling to the harshest places on Earth.

On top of its high-impact capability, the Peli Cases offer such diversity of sizes that it's easy to find a model that can hold the drone plus accessories all in one place, so all you have to do is insert the battery and you're ready to fly, no need to assembly the drone every time you take it out the case.

Easy customization with the Pick N Pluck Foam

Peli Cases offer the Pick N Pluck foam, which allows you to easily remove small cubes in layers to create the perfect fitting space in the



exact size and shape of your kit, keeping it protected and firmly in place.

You can buy several foams and use the same case for different drones or equipment just by changing the customized foam, so it's easy to update the Peli case to the new drone model or other type of UAVs.

A matching Peli Case for virtually every drone

Trolley-style Peli Cases for easy transport: with wheels and pull handle, for taking your drone comfortably anywhere, hassle-free. Consumers could even choose models with bigger wheels for irregular, steepest areas. As an example, the recently announced Drone Freefly Alta is sold inside a customized Peli Case, so that users can set it to fly in 5 minutes. From small and medium to big cases, models like the Peli 1510, the Peli 1610, the 1630 or the Peli Storm iM2875 can accommodate drones like the DJI Phantom and Inspire, QAV, Parrot BeBop, among others.

Cube Peli Cases for more space: In case of

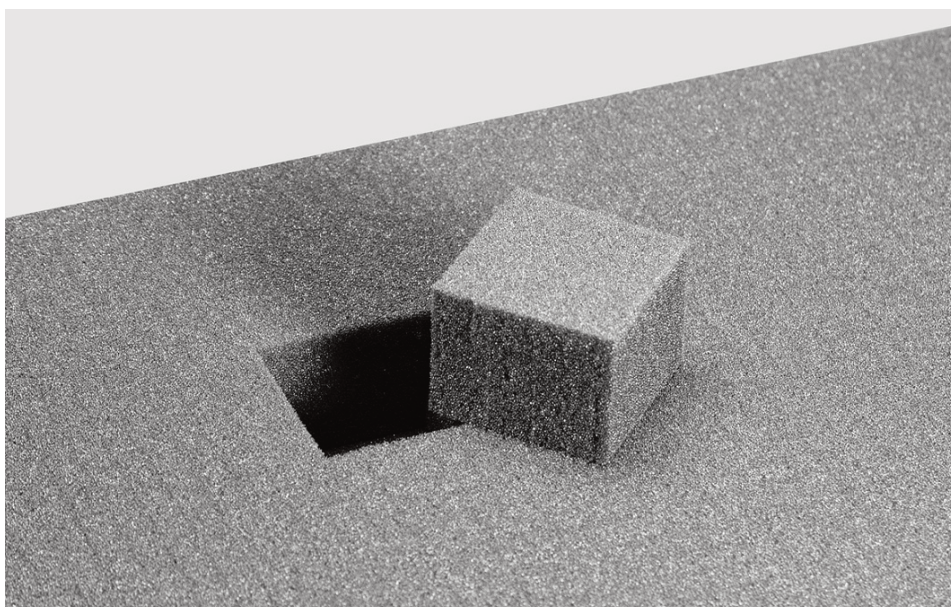
needing more space or depth, the Peli Cube cases like the 0340, 0350 or the 0370, are good options for drones like the DJI S1000. These cube cases have handles and 4 wheels for lighter mobility, and are the smart adventure-ready choice for protecting the equipment.

Long Cases for larger systems: If your AUV fits better in a long-type case, you can use the Peli 1740 or the 1770 model, which integrates wheels and handles, for easy carrying the equipment around.

Peli-Hardigg Advanced Case Solutions – the fully customized option:

With more than 500 sizes to choose from, there is a Peli-Hardigg Case for almost any drone and AUV system available in the market. If that isn't the case, our Peli-Hardigg Advance Case Solutions Engineers team can build a fully customized case with anything that the equipment requires, based on a vast experience in designing high-end cases for SeaCat, Strix UAV, Skylite UAV with launcher, DRAC UAV, among other highly sophisticated equipment created for the most demanding industries in the world.

For more information visit www.peli.com





**DSEI 2015
STAND N6-190**

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Fiber Optical Rotary Joints, Non-contacting Standard Components for 1000 Base T and Media Joints for Cooling

Standard non-contacting high speed data transfer for GigE in combination with fiber optical rotary joints and contactless power solutions up to 2 kW finding their way into complex hybrid rotary joints and slip rings.

Radar manufacturers are confirming, that the trend for installing active components directly onto the antenna is still continuing. Traditional radio frequency rotary joints with various frequency bands are being replaced by power slip rings for the power supply and signal transmission paths in order to control the active components

on the rotating part of the radar systems and for the down-linking of the received signals.

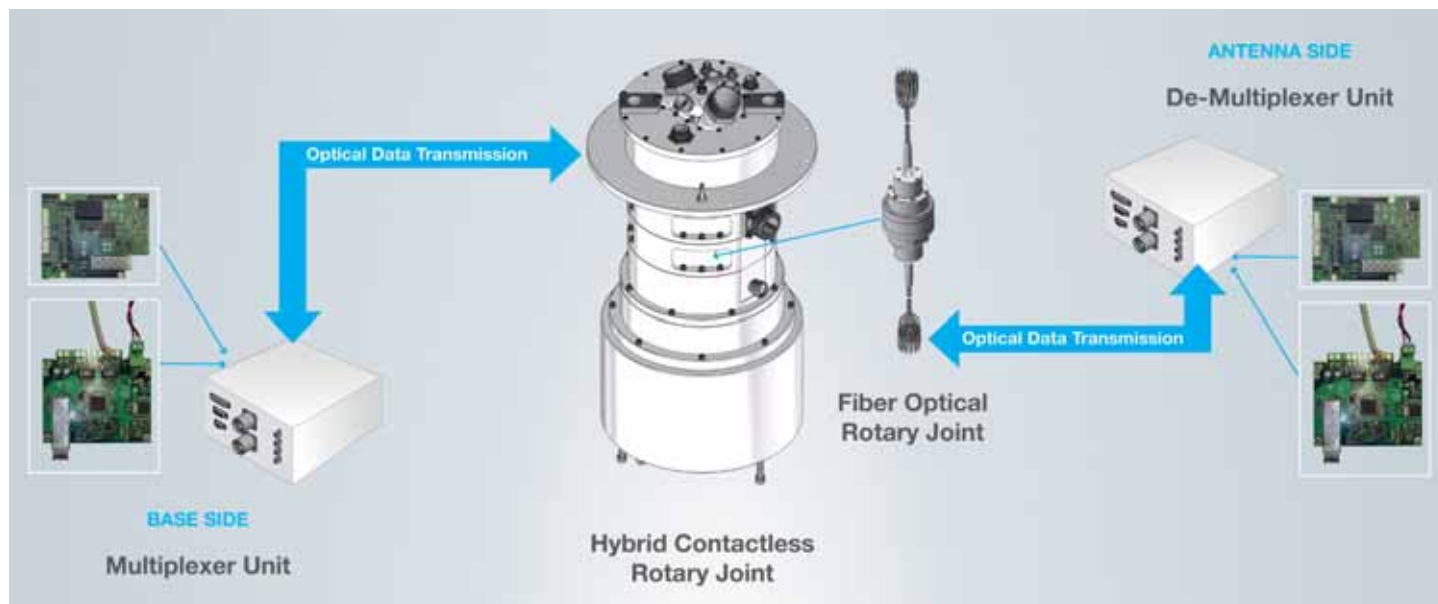
In addition, there is a strong need for cooling of the rotating antenna due to the power amplifiers on top. This media joints are also integrated into complex hybrid rotary joints.

Multiplexer Technology

SPINNER has already realized several projects with multiplexed signals in combination with a fiber optical transmission or a non-contacting data link. This solution leads to reduced

complexity, size and weight of these systems. For example, a 6 channel fiber optical rotary joint with two multiplexer boxes can replace a 200 way signal slip ring.

A 56 way slip ring for a radar application was realized with a complete non-contacting solution. This unit features three 300 Watt 24V DC/DC converters for power, a two channel fiber optical rotary joint and two multiplexer boards for 1000 Base T and 50 ways RS422 and discrete signals.



Hybrid contactless rotary joint with integrated FORJ and multiplexer units at base and antenna side

ETHERNET POWERLINK

Real-Time Signal Transmission

The digital and contactless Ethernet transmission modules are standard modules and support 1000 Base T (GigE), 100 Base Tx (Fast Ethernet) and 10 Base T (Ethernet) with auto negotiation, the signal transmission takes place in real-time.

This provides the benefit that the customer is not limited to a certain standard. Other protocols such as CAN bus, Profinet (class A+B) are available, as well as 24V DC/DC converters with 70 Watt, 100 Watt, 300 Watt up to 2 kW with a mean time between failure (MTBF) that is higher than 300,000h.

As OEM solutions this components are running in the field of industrial plant construction, material testing systems and wind turbines. In combination with the most advanced fiber optical rotary joints this is a perfect combination for future defense applications.

Fiber Optical Rotary Joints (FORJs)

SPINNER's portfolio includes 1 channel, 2 channel, 3 – 6 channel and 7 – 20 channel and up to 52 channel solutions. Single and multimode FORJs are used as stand-alone systems for high data rates or in combination with multiplexing methods.

One highlight is the 6 channel rotary joint, the smallest of its kind on the worldwide market, which was developed especially for the simultaneous transmission of analogue signals. It goes without saying that the simultaneous transmission of analogue and (multiplexed) digital signals at a high decoupling and low insertion loss is also possible.

The dual channel is as well the smallest fiber optical rotary joint (mechanical size) with two single mode channels currently available in the world. The patented mechanics result in a market-leading compactness in a small interface and a low weight.

To provide the most compact solutions, SPINNER's multichannel family is divided into two different housing types: The smallest solutions as mentioned above can be flexibly assembled from 3 to 6 fibers in single-mode and multi-mode or mixed fiber configuration.

In addition to this, a channel count from 7 up to 52 covers the full range of multichannel rotary joints, again in single-mode and multi-mode fiber configurations. With the discrete mounted collimator technology the customer gets superior optical parameter tracking performance with best IL values.

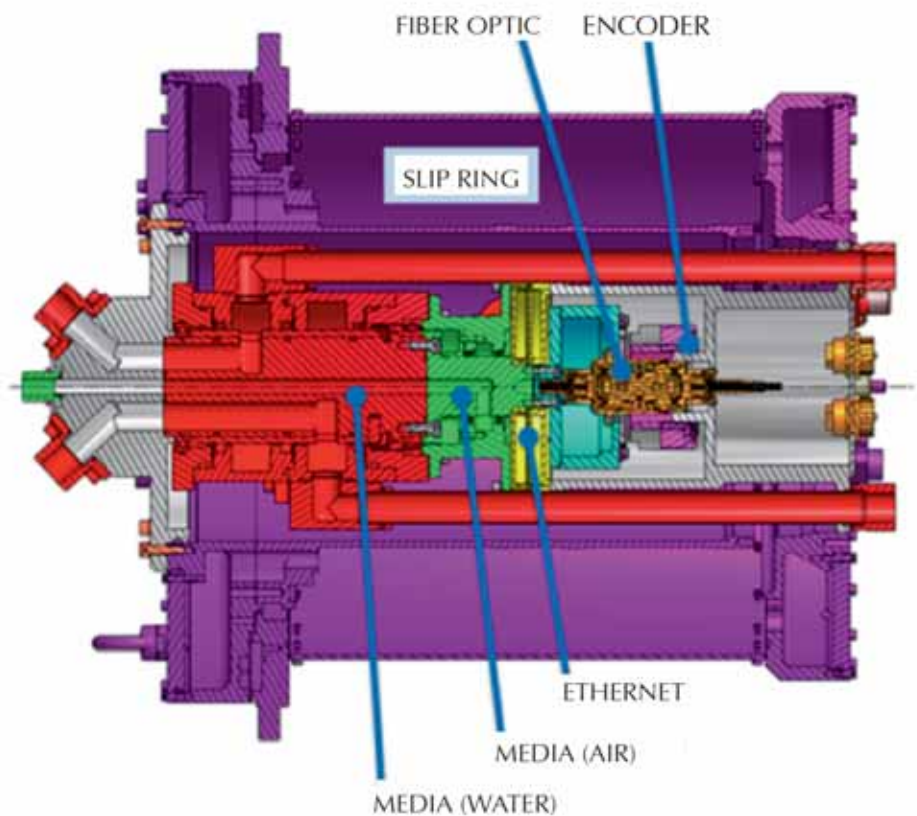
Hybrid units and Integration of Media Joints and/or Encoders

With SPINNER's capability of self-developed media joints and its design know how with the integration of encoders and other transmission

technologies, the company provides solutions for every requirement surrounding hybrid rotary joints.

For highly integrated radar systems with radio frequency (RF) amplifiers directly behind the rotating antenna, access to a cooling liquid is necessary. SPINNER media joint solutions meet this requirement by offering hybrid solutions that transport cooling liquid or simply air through the joint to cool down the active components.

SPINNER – www.spinner-group.com



Sectional drawing of a media rotary joint



SUPERIOR HYBRID ROTARY JOINTS AND SLIP RINGS



GIGABIT
ETHERNET

CONTACTLESS
POWER WITH
FIBER OPTIC

FIBER OPTIC
ROTARY JOINT

HYBRID
ROTARY JOINT

- Defence Applications – Air, Sea, Land
- Civil Applications – Automotive, Satellite Tracking
- Space Applications
- Air Traffic Control Radars
- Contactless Power, Ethernet
- Fiber Optic – Single & Multi Channel (up to 21 channels)
- Media Joints and Slip Rings

HIGH FREQUENCY PERFORMANCE WORLDWIDE

SPINNER designs and builds cutting-edge radio frequency components, setting performance and longevity standards for others to follow. The company's track record of innovation dates back to 1946, and many of today's mainstream products are rooted in SPINNER inventions. Industry leaders continue to count on SPINNER's engineering excellence to drive down their costs of service and ownership with premium-quality, off-the-shelf products and custom solutions. Headquartered in Munich, Germany, the global frontrunner in RF components remains the first choice in simple-yet-smart RF solutions.

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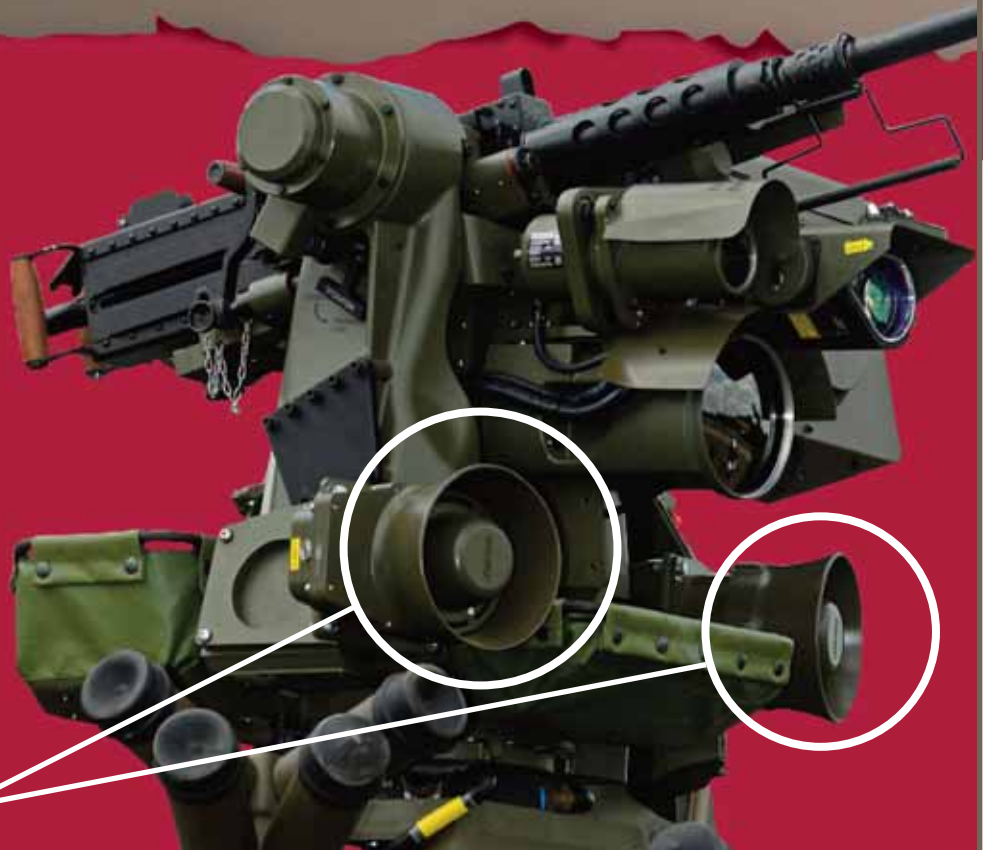
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Until now, these have needed a special machine to change a tyre.

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Tyron R4 -
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runflat systems
for 4 x 4 and
armoured
vehicles.

Additional advantages with Friction Shield

- The lubrication gel is sealed - preventing it from drying out - improving runflat performance.
- It is permanently attached to the runflat so it is impossible to forget to install it.
- It is equally spaced around the runflat which prevents any balancing issues.
- It gets rid of the mess and activates only when needed.



Tyron Multi Band - the
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runflat system.
Approved by NATO and
used by the MOD.



TYRON

Flat Tyre Protection

www.tyron.com

Keeping moving even with flat tyres

Just imagine driving along the motorway or freeway and suddenly a tyre bursts, controlling the car to keep it on a straight line to safety is bad enough, a lorry even worse. Now think of this in a conflict situation, there is a bang you realise the tyre has been hit by a shot or damaged by an IED but the last thing you want to do is stop. Runflat tyres are designed to keep you moving and allow you to get away from trouble.

There are of course a number of different types. Some are made of composites, which are hard and multipart and some made in rubber which are one piece.

Rubber Multi-Part Solution

Tyron is one of the leading suppliers with several patents to our name for our designs. Our runflat is made from rubber, which not only absorbs the shock from bumps much better

than hard composites solutions but also reduces the damage to both the wheel and the tyre so that both have the potential of being re-used when the repairs have been carried out.

A unique part of the Tyron design is that it is a multi-part rubber runflat. This allows the fitter to change a tyre on the side of the road with no special tools.

"During the design process we put a lot of effort into understanding the customer's issue when changing a tyre," comments Tony Glazebrook, Tyron's Technical Director. "With this understanding we developed our All Terrain Rubber Runflat range for off road and military applications knowing that the runflat would not be "accidentally forgotten" when changing the tyre."

How They Work

Rubber runflats are designed with beadlock, which prevents the wheel slipping inside the tyre which allows the vehicle to continue on its mission and get back to base.

MultiBands and All Terrain Rubber Runflats

At Tyron we have designed a range of solutions to keep vehicles moving safely. These extend from the Tyron Multiband, which is designed to keep the tyre firmly in place on the wheel, allowing you to continue to a safe place to change the tyre, to the All Terrain Rubber Runflat or ATR, which is designed to allow the vehicle to return to base with its tyres deflated in a range of sizes to fit a wide variety of military vehicles from small patrol through to large self-propelled artillery. Most recently we have introduced Friction Shield.

Friction Shield

Friction Shield's lubrication system is designed to further improve the performance of the world's only multi-piece rubber run flat. At the heart of Friction Shield is a sealed lubrication



system to stop it drying out, or becoming contaminated and is permanently attached to the run flat itself making it impossible to forget when changing tyres. The sachets burst following tyre deflation and provides the right amount of lubricant to ensure that the tyre is not damaged further by reducing the heat generated by friction between the runflat and the inside of the tyre itself, this enables the vehicle to keep functioning effectively over longer distances and higher speeds.

Forgetting the lubricant will reduce the runflat performance of any system by up to 90%!

Stand number: N9-300

www.tyron.com

TYRON
Flat Tyre Protection



New British Army SCOUT SV armoured vehicle equipped with Oxley LED lights

The new SCOUT SV armoured fighting vehicle developed for the British Army by General Dynamics UK will be equipped with high performance LED lights designed by Oxley Group with advanced protection against electromagnetic interference.

The Group has secured an order worth more than £1M from General Dynamics European Land Systems, a sub-contractor on the programme, to supply ultra-compact low profile dual mode interior lights and map 'task' lights for the vehicles.

The total order will see thousands of lights delivered, including DC Combi LED interior lights and Gooseneck task lights. The space-saving DC Combi LED light provides vital advantages within the confines of an armoured vehicle. Unique in its low-profile design, the Oxley DC Combi delivers white light plus an integrated blackout mode.

The 'Gooseneck' map lights have been developed by Oxley to provide rugged and flexible task lighting designed to meet the toughest military standards; they incorporate state-of-the-art LED technology to provide a light with outstanding tolerance for vibration and shock. The lights are dimmable and NVIS friendly with dual-mode controls.



Oxley Group is alone in meeting the latest British Army standards EMC Def Stan 59-411 Land Service class A & B and DEF-STAN 61-5 PART 6 ISSUE 6 required for SCOUT SV.

DC Combi lights incorporate class-leading EMC characteristics as standard but that capability was further refined to deliver higher levels of EMC and circuit protection to meet the demanding specifications of the customer. The new SCOUT SV platforms will carry a huge array of high specification electronic equipment which means that advanced Electromagnetic Compatibility (EMC) is essential for the lights as it prevents interference with other mission critical equipment.

Excellent light quality from the white LEDs and 16 tactical mode LEDs together with the build standard of the driver board electronics provide true long life and consistency in performance of the LEDs. This is matched with rugged casing which makes the Oxley DC Combi a 'fit and forget' option that outperforms any other comparable product. The extended working life - typically 50,000 hours - dramatically reduces replacement, maintenance, disposal and labour costs compared to existing lighting technology.

The lighting system was an integral part of the vehicle acceptance, and the final UK MoD order is for 589 vehicles beginning delivery in 2017 through 2024. A key element of the success Oxley has had in the defence market is the integration of the highest quality LEDs into the systems designed for military vehicles. That means industry-leading resistance to shock and vibration, heat sink technology, manufacturing to IP67/69K waterproofing, and CE marking to ensure they meet health and safety standards. Martin Blakstad, Group CEO commented; "We are delighted to be working with General Dynamics on SCOUT SV, which is a key part of the strategic development of UK armoured vehicle capabilities. We pride ourselves on setting the standards for LED technology in the defence sector and work with customers worldwide to deliver unparalleled quality."



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