



EXPLOSIVE ORDNANCE DISPOSAL SOLUTIONS

Technology – Reliability – Performance





RDS-6711 and RDS-6713

Programmable & Multiple firing units with Single & ten detonator connection Ports

System Description

RDS-67 series Remote Detonation Systems are field proven products. These are qualified on military standard for safe and reliable initiation of explosives remotely. A hand held Master Control Unit (MCU) can have two way communication with Remote firing units (RFU) under two configurations:

- ➔ **Single Detonator port RFU (SL6711)** ; Max 20 such RFUs can be operated by one MCU.
- ➔ **Ten Detonator ports RFU (SL6713)** ; Max 02 such RFUs can operated by one MCU.

Main Features

- Confirmation of status and detonation through Close loop communication
- Fully EMC tested & built to meet environmental standards MIL STD 810E
- Operating range 4 to 5 Km in urban areas and 20 to 25 Km in line of sight
- Self-test facility available in both MCU & RFU
- Status update of battery, line impedance and detonation command
- Detonator status : RFU monitors line impedance & load status
- Cancellation of firing command within the programed time
- Both options of wireless and land line communication in single system
- MCU can be programmed to fire sequence of different RFUs
- Self- Piercing rugged wire connectors
- Micro Controller based Battery charging
- Night Illumination.

Safety Features

- Designed for maximum reliability & safety
- Two hands operation
- Arming delay safety timer
- Isolation of Charging Capacitor from firing circuit till detonation command is received
- Unique serial numbers and use of encrypted system
- LEDs indications & LCD based Menu
- Data Encryption secure communication between unique serial numbers
- 5 Min. safety timer for user withdrawal

Master Control Unit (MCU)

The MCU is a hand held, waterproof Aluminum housing having UHF transceiver, along with the micro controller based control circuitry. The MCU is powered up with an internally installed Lithium-Ion battery module. Following are the main features of MCU:


- Self-test Status (Battery, RF/Land Line, Detonator status)
- Communication through Microwave or land Line
- Monitor and Program, Remote Firing Units
- Status display (Battery, RF/LL, Detonator) of RFUs
- Programming of firing sequence
- Self- Piercing rugged wire connectors
- Micro Controller based Battery charging circuitry
- Encrypted communication with RFUs
- Night Illumination

Remote Firing Unit (RFU)

The Remote Firing Units are waterproof Aluminum housing containing UHF transceiver along with micro Controller based control circuitry. RFUs are powered up with an internally installed Lithium-Ion battery module. RFUs decode and execute the commands received from MCU and acknowledge the status and results to MCU. Following are the main features of RFUs:

- Self-Test circuitry
- Communication through Microwave or Land Line
- Self- Piercing rugged wire connectors
- Micro Controller based Battery charging circuitry
- Encrypted communication
- LED Indicators (Battery, RF/Land Line, Detonator)
- Provide energy to Detonator

Detailed Technical Specifications

Configurations		
	RDS 6711	RDS 6713
Frequency	UHF (429MHz to 436MHz)	
Modulation	FSK	
Operating Range	Line of sight 25 Km, 4-5 Km in Urban/vegetated area	
Number of RFUs	Up to 20	Up to 2 each can further fire 10 circuits.
Ops Temp. range	-20°C to +55°C	
Store Temp. range	-30°C to +65°C	
Humidity	95% RH at 40°C	
Max. TX power MCU	< 5 watts Typical (wattage can be reduced to user requirement)	
MCU Size mm (L x W x H)	225 x 110 x 75 max	
MCU weight	2.3 Kg (with battery) (depending on backup time & battery size)	
Data entry I/P	12 Keys Key Pad	
MCU Battery	12 V, Lithium-Ion rechargeable	
LCD	4 x 16 characters, with backlit	
RX Sensitivity	-119dBm	
Weight RFU	2.1 Kg with battery (one RFU) (with less backup time weight can be reduced)	4.4 Kg
Battery RFU	12 V, LiFeO4 rechargeable	
Battery Time RFU	75 Hours (Many months with solar charging option)	Up to 20 hours
Antenna Impedance	50 Ohms	
Available energy	0.5 Joules	
Max line impedance	60 Ohms	
Firing Circuit	Capacitive Discharge	
Battery charging	Utility Power, Vehicle or Solar	
Transit Case	ABS shock/water proof	

Accessories with RDS


Standard Accessories

1. **Transit case.** Each system is supplied in a rugged case; which can house all the items of the system in cut foam packing where the operator has ease of packing after the operation. Any specialized packing can also be provided on the user request.
2. **Chargers.** Chargers are supplied for each RFU and MCU



Optional Accessories

1. **Demolition cable.** Dem cable conforms to DEF STAN 61-12 Part 17. We also offer the reels on the specialized requirements of any client.

Conductor					Finished Cable		
No. of Strands	Strand Dia mm	Insulation Thickness mm	Dia. mm	Mean O/Dia. of each core mm	Dia over sheath. Mm	Conductor DC Resistance @ 20°C	Weight Kg/Km
24	0.2	0.65 nom	2.44 nom	Lower Limit 2.39 Upper Limit 2.49	4.88 nom	26 ohm/km	28 Apprx.
Length							
100 m							
200 m							
300 m							



2. **Tripod Antenna Stand.** A tripod antenna can be provided to extend the range or when in a very thickly vegetated area. This raises the height of the receiver antenna.

Blasting Cap Box. The box can holds 10 blasting caps, made of durable plastic with locking clip. The top cover lid is made of steel.



Electronic Exploder (Shrike) EES-665

The Electronic Exploder is a light weight two hands fire and press operated electronic exploder. Also referred as **Shrike**; it can fire four load circuits. It replaces old Exploders like Dynamo Condensers and Safety Ohmmeter. It can check continuity of firing circuit before fire. The model is small and silent in use.

It provides sufficient energy from its alkaline battery pack to overcome a total parallel-wired circuit load up to 400 ohms on each firing. It is capable of initiating maximum of 4 electric detonators simultaneously over a distance of 4Km, using a demolition cable. A fully charged battery pack will provide a maximum of 50 firings before requiring replacement of cells. The shrike has a strong light and splash proof housing and employs solid state electronic circuitry for reliability.



- Electronic circuits heavily RFI shielded.
- Firing circuit continuity test facility.
- Indicator LEDs - to confirm continuity OK and confirm Primed.
- Safety recessed pushbuttons for Test, Prime and Fire.
- Two pushbuttons need to be depressed with two hands to ..

Item	Specification	Item	Specification
Output Volts	900 V max	Waterproofed	IP67
Output	4 circuits	Battery Pack	12V 8 AA alkaline
Output Load	400 Ohms each circuit	Weight	Less than 0.8 Kg

Accessories with Electronic Exploder


Standard Accessories

In addition to complete Exploder, following accessories are included in the packing:-

- Olive Green soft carrying case.
- Alkaline cells "AA size" Qty 08.
- Instructions card.
- Manual.

Optional Accessories

1. **Demolition cable.** Demolition cable conforms to DEF STAN 61-12 Part 17. We also offer the reels on the specialized requirements of any client.

Conductor					Finished Cable		
No. of Strands	Strand Dia mm	Insulation Thickness mm	Dia. mm	Mean O/Dia. of each core mm	Dia over sheath. Mm	Conductor DC Resistance @ 20°C	Weight Kg/Km
24	0.2	0.65 nom	2.44 nom	Lower Limit 2.39 Upper Limit 2.49	4.88 nom	26 ohm/km	28 Apprx.
Length							
100 m							
200 m							
300 m							



2. **Blasting Cap Box.** The box can holds 10 blasting caps, made of durable plastic with locking clip. The top cover lid is made of steel.

EAD-20 Recoilless Disrupter



EAD-20 is a 20 mm bore recoilless Disruptor designed for disrupting the IEDs with a high probability of avoiding detonation. It answers for requirement of a medium powered and accurate disruptor. The disruptor can be employed with a multitude of support arrangements like its stand or on a EOD robot mount. The disruptor design pays special attention to simplicity safety and speed. Recoilless operation is achieved by ejecting water load rearward at the same time as the forward load.

EAD-20, can also be utilized to fire steel slugs/ forks. This provides IED technicians flexibility to attack IEDs areas which cannot be penetrated with water-jet. The equipment can also be utilized to work as EOD De-armor.



EAD-20 breach has a safety pin to keep the terminals short and cartridge is connected just when it has been deployed. This enables a bomb technician to set up the disruptor at the incident control point and spending minimum time at IED

EAD-20 is ideally suited for installation on EOD Robots due its recoilless feature. An adapter can be provided for installation of the disruptor on the robot if the mounting details of the robot are provided.



Leading parameters

Item	Specifications	Item	Specifications
Length assembled	525 mm	Width (with Recoil Body)	150 mm
Water qty to be filled	210 cc	Bore diameter	20 mm
Danger area forward	140 m	Danger area rear	30 m
Minimum height with stand	0.5 meters	Weight with stand	8.5 kg
Disruptor movement on stand (azimuth)	360°	Recoil system	98% recoilless
Disruptor movement on stand (elevation)	180° (with combination of azimuth and elevation movement the disruptor barrel can be aligned to any direction)		
Weight	Complete kit with packing 16 Kg and Disruptor only 7.5 Kg		
Maximum height with stand	1.1 meters (can attack IEDs to height 1.3 m)		
Standard accessories	Packing & carrying box, Tripod stand, Removable Cleaning Brush, Push rod, Spanner Tube, Floppy wrench, Water bottle, Allen key, Recoil sleeve head, Recoil sleeve.		
Optional Accessories	Thread protector, Steel Slug (A)/Steel chisel, Steel Slug (B)/ Steel blunt, Steel Slug (C) or Cutting Fork, Loading sleeve, Laser aiming head, Laser camera, Robot installation Mount, Special slugs can be made on customer's requirement.		
Ignition voltage	Works with commercial exploders/ blasting machines.		
Composition	Specially treated Stainless Steel alloy and Aluminum alloy recoil body.		

EAD-254 Water Disrupter



EAD-254 series disrupters are designed as a means of disrupting IEDs. There is high probability of avoiding a detonation or explosion of IED on its deployment. These are light weight and medium caliber disrupters capable of being fired remotely. The complete disrupter is constructed with high strength stainless steel. The complete disrupter with its stand and accessories are supplied in strong cordura outer pack with carrying straps.



Breach with safety pin. Disruptor breach has a safety pin to keep the terminals short and cartridge is connected just when it has been deployed. This enables a bomb technician to set up the disruptor at the incident control point and spending minimum time at IED.

Injector Barrel

Injector barrels with fluid capacity of 0.1 liters (260 mm length) or 0.2 liters capacity (485 mm length) can be supplied. Barrels are specially treated to have a long life.

Stand

The stand is multi position with counter weight. The hinges contain friction washers and spring loaded nylon insert to receive the barrel. The disruptor can be deployed to heights of more than 1050 mm.

Kit complete



1 x Barrel	1 x Small Arms cleaning Brush
1 x Breech	1 x Screw Driver
1 x Tool Loading Injector	2 x Ln Key
1 x Adapter	1 x Water Bottle
2 x Cleaning Brush Wool	2 x Safety pin
1 x Cleaning brush steel	1 x Transit case fabric
1 x Cleaning Brush Nylon	1 x Multi position Stand
1 x Rod for cleaning brush	

EOD Render Safe Tools

In EOD avoiding detonation of unexploded bombs is the prime objective. Render Safe Procedures are adopted for which different tools are available for breaking the detonation train by removing or breaking the bomb fuze.

Rocket Wrench XT01

Bomb Fuse extractor 'Rocket Wrench' XT01 is a high torque, remotely operated dynamic wrench. It is designed to unscrew and remove bomb fuse mechanisms by using two 0.5 inch cartridges. Two rocket tubes with cartridges fitted in opposite directions, when initiated, rotate the wrench thus unscrewing the fuse out of the bomb body.



Different sets of jaws are provided to hold firmly onto different shapes of fuzes. It can generate torque in both clockwise and anti-clockwise directions. The electrical cartridges can be initiated using an Electronic exploder or a wireless remote detonation system.

Components

- Wrench with pair of Rocket Tube and Venturies.
- Taper Jaws/ Roller Jaws.
- Electrical and Det-Cord Plugs.
- Bungee Cord Set.
- De-bulleting kit

When fired, a bungee cord tied to a stump pulls the rotating wrench away from the bomb body. The Rocket Wrench kit can also be powered using 0.50 inch cartridges by removing its bullet. De-bulleting equipment is also supplied with the kit.

Fuze Projector (De-armor) XT02

Fuze projector or a De-armor deal with the fuzes of UXOs for breaking its detonation train. De-armor has specially designed barrel, with slugs to be fired by a cartridge. De-armers disrupt fuses with cocked strikers. Electric 0.5" cartridges or de-bulleted 0.5 " rounds are used in it. A fork can be used for a lower velocity attack on some specific fuses. This tool can also used against Improvised Explosive Devices (IED's) also with special shot load.



The disruptor and RSP tools are powered by electrically initiated power cartridges (separately ordered) which are supplied together with piston and closure cap, as a kit. The injector is fired remotely, from safe location, utilizing firing line and electronic exploder.



Capability Enhancements EOD Robots

EOD robots are versatile platforms and the applications of different users can vary based on the threat. Various multiple attachments to enhance the capability of any robot are offered.

EOD Robot Shot Gun



Multi-shotgun is offered to be mounted on a frame incorporating the Firing Actuation Mechanism, Laser Aiming, Camera and LED light. In EOD or IEDD operations remote controlled shot guns are used to gain access or shoot an area of interest. The gun used for the system is a multi-shot and semi-automatic. The gun has the capability to fire five shots. To install the gun on any robot the complete assembly is fitted to the Arm of the robot and connected to the local firing terminals.

EOD Robot disrupter mount

The disrupter mount is versatile to get adopted on different arms of robots. Every IED defeating robot has to be adopted for a water jet gun Disrupter. We provide an economical solution for mounting the disrupters on the robot. This is done on the robot arms. Our Recoilless disrupter EAD-20 with its mount and aiming sight are available for a versatile installation. The product is rugged and field proven.



EOD Robot X-ray mount

A universal mount which can adopt to various manual and digital X-ray systems for any robot. The X-Ray Mount attachment suitable for carrying the Kappa, Scanna and Golden Engineering X-Ray equipment. The Mount is easily carried in the claw of the robot, allowing the X-Ray system to be placed around a suspicious object.



Audio/Video unit for EOD Robots



Various audio/ video senders/ receivers options for EOD Robots facilitate aiming and robot tools' operations monitoring. The audio and video senders for EOD robots have been developed for monitoring the tools operations and for the aiming of the weapons to be fired.

Window breaker

The window breaker is used to gain access to a vehicle's windows by breaking its glass. it is a simple tool which can be adopted with any robot.



Non Magnetic Anti-Spark Tools

The non-magnetic Safety kit has common tools with Beryllium-Copper material (non-magnetic) and with non-sparking features. The kit is suitable for safe working during the Bomb disposal activities and for tasks like working in a gas station or places where fuel fumes and explosives atmosphere exists.

A customized kit with tools defined of the user's own choice and for requirements of particular working environment can be prepared. Special hand tools for specialized applications are also available. The tools are placed in a packing with cut foam to accommodate all the tools. All tools are suitable for contact use and are supplied individually certified.



55 Pcs Tool Kit items

1.	Anti-Spark Hammer 500 grm	2.	Anti-spark ring spanner 12Pcs 6mm to 32mm
3.	Anti-spark pliers	4.	Anti-spark opened spanner 12Pcs 6mm to 32mm
5.	Anti-spark pliers nose	6.	Anti-spark combination spanner 18Pcs 6mm to 32mm
7.	Anti-spark pliers cutter	8.	Anti-spark pipe Wrench 12''
9.	Anti-spark screw driver 4pcs (6mm to 12 mm)	10.	Anti-Spark Pipe Wrench 15''
11.	Anti-spark adjustable wrench 8''	12.	Anti-Spark Pipe Wrench 18''
13.	Anti-spark adjustable wrench 10''		

46 Pcs Tool Kit items

Sn	Nomenclature	Size	Sn	Nomenclature	Size
1.	Circular mallet	1 P	2.	Heavy hammer	3 P
3.	Saw frame	500 mm	4.	Saw blade	300 mm
5.	Marking tool	187 x 32 mm	6.	Chisel	20 x 200 mm
7.	Chisel	16 x 150 mm	8.	Knife	180 mm
9.	Adjustable wrench	150 mm	10.	Adjustable wrench	250 mm
11.	Wrench pipe	350 mm x max 50 mm	12.	Pliers long nose	200 mm
13.	Pliers Side cutting	150 mm	14.	Pliers Combination	200 mm
15.	Flat-Nose Pliers	150 mm	16.	Round-Nose pliers	200 mm
17.	Needle nose pliers	150 mm	18.	Tweezers	200 mm
19.	Scissors	225 mm	20.	Screw driver	3 x 50 mm
21.	Screw driver	6 x 100 mm	22.	Screw driver	4 x 150 mm
23.	Screw driver	8 x 150 mm	24.	Screw driver	10 x 300 mm
25.	Screw Driver	10 x 140 mm	26.	Philips Screw driver	1 x 80 mm
27.	Philips Screw driver	2 x 100 mm	28.	Philips Screw driver	3 x 150 mm
29.	Philips Screw driver	4 x 200 mm	30.	Wires brush	125 mm
31.	Slotted Offset Screwdriver	140 x 5 mm	32.	Slotted Offset Screwdriver,	160 x 12 mm
33.	Lever	15 x 500 mm	34.	Measurement tape	20 m
35.	Spanner	8 x 10 mm	36.	Spanner	9 x 11
37.	Spanner	10 x 12 mm	38.	Spanner	12 x 14 mm
39.	Spanner	14 x 17	40.	Wrench, Hex Key	1.5 mm
41.	Wrench, Hex Key	2 mm	42.	Wrench, Hex Key	2.5 mm,
43.	Wrench, Hex Key	3 mm	44.	Wrench, Hex Key	4 mm
45.	Wrench, Hex Key	5 mm	46.	Wrench, Hex Key	6 mm

Hook & Line Kit



Hook and Line kit provides a bomb technician with a wide range of equipment/tools that can be deployed to gain access, to remove, manipulate and handle a suspect item. This kit is a vital part of EOD kits for any semi-remote IED operation. The kit consists of various hooks, ropes, pulley, lines, hanging ring, rod, clamping device, multifunction tool clamp, sling and so on. The kit has been developed with the inputs of various EOD operators and their experiences. These kit provide great flexibility with various options to handle the IED. An experienced EOD team can quickly construct a hook and line mechanism that enables the team to investigate and facilitate detonation and/or removal of suspicious materials with safety.

List of kit tools : Packed in a Water-proof and anti-shock suitcase are the following tools of the hook and line kit:-

1.	Reel, with Kevlar rope 100 m, fitted with snap hook (1)	47.	Pulley with jammer cleat (1)
2.	Hook, small single plain Φ 13mm (1)	48.	Shackle d shape 13mm gate (2)
3.	Hook, medium single plain Φ 25mm (1)	49.	Screw eye self tap (10)
4.	Hook, medium double plain (1)	50.	Adjustable clamp system (1)
5.	Hook, large single plain Φ 50mm (1)	51.	Door stop (4)
6.	25 mm eye (2)	52.	Multi function pocket tool kit (1)
7.		53.	Pulling handle for Kevlar rope (1)
8.	Rope sling, 5-6mm dia x 5m long (2)	54.	Rope eye (1)
9.	Rope sling, 5-6mm dia x 2m long (2)	55.	Telescopic pole 4 sections, L=3.2m (1)
10.	Wire sling, 1.5mm dia x 2m long (2)	56.	Spring loaded self grip clamp (2)
11.	Wire sling, 2.0mm dia x 2m long (2)	57.	Belt sling 1200mm×80mm (1)
12.	Wire sling, 3.0mm dia x 2m long (2)	58.	Automatically opening snatch block (4)
13.	Piton, small spear point (1)	59.	Torpedo release (2)
14.	Piton large spear point (1)	60.	Sticky eye (10)
15.	Piton small chisel point (1)	61.	Gang way brace with eyes (2)
16.	Piton large chisel point (1)	62.	Sledge skid pan 580mm×310mm×160mm (1)
17.	Double suction pad (1)	63.	Hard case with foam cutout (1)
18.	Self locking 'mole grip' with 25mm eye (1)	64.	Hook, wide mouth and spring loaded gate 110mm×80mm×12mm (1)
19.	Karabiner (alloy) 18mm screw gate 27kn (2)	65.	Hook, wide mouth and spring loaded gate 135mm×80mm×12mm (1)
20.	Karabiner (alloy) 25mm screw gate 27kn (2)	66.	Triple barb hook, with mount for telescopic pole (2)
21.	Eye hooks ϕ 23mmX50mm	67.	

Bomb Disposal EOD Suit

The BD2009 Bomb Disposal Suit provides high level of protection, at the same time offering maximum comfort and flexibility to the operator. The ballistic levels and materials used in the various components of the BD2009 Bomb Disposal Suit are tested and evaluated to the full quality assurance standards.



Components

- Fire-retardant Nomex outer cover
- Jacket with attached collar
- Pouches for working tools
- Backbone protector
- Neck protector plate
- Chest protector plate
- Groin protector plate
- Trousers
- Hand protector
- Boot protector
- Armored bomb disposal helmet with visor, fan and search light, light adjustable
- Built-in environmental awareness system - Integral radio earpiece and microphone with ambient sound facility
- Two-way hardwire communication system
- Two-way wireless communication system
- Completely cooling suit - Ice water circulation speed control
- 12 V Rechargeable battery
- Transit Bag

Jacket

The Suit's jacket is a long-sleeved, side opening design filled with flexible armor. Provision is made on the front for rigid chest and groin blast plates by means of integral pockets with webbing and Velcro securing straps. Pouches are provided for tools or radio on front and back of the outer cover. The high collar provides overlap protection to the helmet, visor and neck-guard. Immediate regress from suit is achieved by quick-release straps.

1. **Ballistic Inserts:** Multi-layer water-repellent Kevlar stitched for an enhanced protection level.
2. **Outer Cover:** Washable fire retardant Nomex fabric
3. **Color:** OD Green, Navy Blue, Desert Tan, ACU available
4. **Proprietary:** Armored steel plates with closed cell, linear foam.
5. **Blast Plates:** Armored Steel

Trousers

The Trousers have fully adjustable supporting braces and wide Velcro waistband catering for small, medium and large sizes. At the rear of the legs a full length Velcro strip is used in conjunction with the retaining straps to fix the articulated flexible armor in position. The boot protectors are an integral part of the trousers and are held in position by Velcro and webbing straps.

Specification

Item	Specifications	Item	Specifications
Weight aprox	26 kg with armored blast plates. 17 kg without armored blast plates.	V₅₀ Suit front	600 m/s (without armored blast plates) 1600 m/s (with armored blast plates at groin, chest and neck)
Color	OD Green, Navy Blue, Desert Tan, ACU available	V₅₀ Trousers	640m/s
Insert	Stitched multi-layer water-repellent Kevlar	V50 Neck Protector	850 m/s
Color	OD Green, Navy Blue, Desert Tan, ACU available	Foot Cover	450m/s
Outer Cover	Washable fire retardant Nomex fabric	V₅₀ Foot Cover	450m/s

EOD Hardwired Comm System

EHW-13 is a programmable, micro-controller based, single-channel intercom station for use as bomb suite wired communication system. When used with mono headset, the EHW-13 allows full-duplex single channel voice communications. The system can be tailored made to adoptable with most international EOD suits.



Features

- Call function that allows the user to send or receive audio signals to other devices i.e. spool, Integrated power Supply & helmet.
- Digital Volume Control.
- Volume control for the operator (Helmet)
- Display for volume control and battery status & recharging progress.
- Un-switched mic output at line level, via the auxiliary inputs connector.
- Remote mic switch via either the carbon mic connector or via the auxiliary inputs connector.
- Battery charging function within the system. Audio recording and play back

Package includes following

- ✓ Command Post Control Station
- ✓ Rugged Head Set
- ✓ Digital recorder for 34 hours recording
- ✓ Tangle-free rewindable Spool 150 meter cable.
- ✓ 8 Alkaline Batteries
- ✓ Patch cord
- ✓ 12 VDC Charger for re-chargeable Batteries
- ✓ Car/Cigarette Charger
- ✓ User Manual
- ✓ Carrying Case



Specifications

Item	Specifications
Weight	1.2 Kg
Power Supply	12 VDC nominal
Environmental	Storage: -40°C to 90°C; up to 95% humidity, non-condensing Operational: -10°C to 50°C; up to 95% humidity, non-condensing.
Operating time	22 hours



Body Cooling System for EOD suit

ECS-2 Body Cooling System is an autonomous ice reservoir chilled water circulation cooling system. The system is designed primarily for the EOD operators. During the EOD/IEDD and mine clearance operations, the protective suits, worn for personal protection against blast effect, prevents the body from cooling itself naturally. The ECS-2 is designed to be worn as a tube sewn under garment, over which an EOD, fire or any other suit is worn. Different tests have shown that the EOD suits worn with the cooling system regulates the body temperatures.



Item	Parameter	
Cooling Rate	480W @ 350mL/min.	
Operation modes	Mode-1 : Continuous run (DIS) Mode-2 : Battery Save mode (EN) (with adjustable flow rates)	
Interconnections	Auto shut off CPC connections	
Endurance	More than 1.5 hours at mode – 2 The endurance can be increased to more than 2.5 hours in Mod-2. It can be further increased if the pump flow rate is reduced.	
Cool tube suit		
Wearing Weight	With liquid Filled – 0.9 to 1.1 kg	
Tubing	PVC	
Garment	Full torso, arms, head and lower body coverage Snug fit design for maximum contact for optimal cooling Diffused manifold for evenly distributed cooling Continuously stitched medical grade PVC tubing CPC interconnectors for shirt/pant, shirt/hood coupling.	
Interconnection	1/8” flow CPC connectors.	
Color	Brigade Blue, Navy Blue or Sahara brown	
Fabric	50/50 Kermel /FR Viscose	
Sizing Chart		
Size	Height(ft)	Weight(lbs)
Small	5' 4"- 5' 8"	120-145
Medium	5' 7" - 5'11"	145-165
Large	5'10"- 6' 2"	165-190
X-large	6' 1"- 6' 5"	190-235
Cooling Unit		
Ice bottle	2 liters capacity	
Flow rate	Adjustable between 70 to 400 ml/min	
Weight	3.3 Kg	
Pouch	Cordura with insulation	
Battery	12 VDC/ 1.3AH Re-chargeable	
Load Cutoff volts	9.1Vdc ±0.2Vdc	
Charge cutoff	Upper charging voltage cutoff at 14.2 Vdc	
Charging Ind.	Dual color LED (RED : charging /GREEN : charged)	

Key features

ECS-2 is capable of removing up to 400 watts of heat (1365 BTU/hour or 344 KCAL/hour) as measured in human physiological tests under laboratory conditions in an ambient temperature of 37.8°C (95°F). Cooling Endurance in field lasts approximately 40-60 minutes under moderate work rates and ambient temperatures around 35°C (95°F).

Standard accessories.

- Spare bottle
- Battery Charger.
- Carry bag.
- Maintenance kit. Includes filter and cable ties.



Armored Bomb Disposal Helmet With Visor

The bomb disposal helmet is made of a GRP skin with an elastomeric aramid core and is fully adjustable to fit various sizes by means of the three point suspension and the removable spacer pads. Communication system consisting of a headphone and microphone. Hardwired communication system or the operator an extension lead can be attached to any VHF radio transceiver. Also incorporated in the helmet is an air ventilation system which directs the flow of forced fresh air over the top of the helmet liner, across the visor and down over the operator's faces ensuring efficient demisting and clear view. An NBC canister can be accommodated to the helmet.



Specification

Item	Specifications	Item	Specifications
Weight approx	4.8 kg	V ₅₀ Helmet	600 m/s
Air Blower	Up to 200 liters/min (Adjustable speed)	V ₅₀ Helmet Visor	750 m/s
Materials	Mold: GRP skin with elastomeric aramid core and inner lining. Visor: Anti-Ballistic hardened acrylic/polycarbonate laminate Suspension Harness: Webbing & Ballistic Nylon		

Capital Services System

No.27, 1st Floor, AL-Baber Centre, Markaz F-8, Islamabad, Pakistan

Tel: +92 51 2110525, 2855627, 2856534 Fax: +92 51 2110526, 2855629 info@csspakistan.com

Robotic Telescopic Manipulator

EMAN-02 robotic manipulator allows EOD/IED operators to manipulate suspect devices and objects at a stand off distance of 3 meters. Tube sections are fully telescopic, with a powered claw at the operating end. The claw has a frangible joint, it will brake in case of an unplanned detonation. The claw opens, closes and rotates under powered control.



Key Specifications

Item	Parameter
Length: Minimum	1.6 m
Length: maximum	5 m
Operator's distance	3-4 meters
Lift Capability	10 kg
Weight	20 Kg when packed
Max. gripping force	Adjustable
Opening width of Claw	200 mm
Counterweight	5.5 Kg
Claw Rotation	360° continuous
Wheels	Bipod /tripod
Battery	Rechargeable

Recordable LCD Endoscope for EOD search

The Recordable LCD Endoscope is a visual search tool for hard to enter areas. It is easy to operate, is handy, rugged and compact design that makes search of the areas easier and faster. It is a very useful tool for visual search required in EOD clearance operations.

- 3.5" TFT LCD
- QVGA resolution (320x240 pixel) video clips and still images(640x480 pixel) with instant playback
- LED brightness adjustment
- 2X larger images and horizontal mirror for code identification
- AV out
- Auto power off function(Energy saving)
- 5.5mm External diameter, can easily get through spark plug holes of any engine
- Extra wide angle camera.



Item	Specifications
System Dimension	117.5mm x 207mm x 37mm
System weight	388 g
Display	3.5 TFT LCD QVGA
Power	Rechargeable Li-Polymer battery 3.7V
	Power supply AC 100-240V 50-60Hz
	Power consumption DC5.5V 1.8A
Battery Life	4 hours (2 hours charge to full)
Storage	SD card (SDHC), up to 32G
Video out	NTSC & PAL / AV out
Video / Photo file format	.avi / .jpg
Video / Photo resolution	640 x 480
Working Temperature	0°C~60 °C
Storage Temperature	0°C~60 °C

Pump Action Shot Gun PAF-1

PAF-1 Pump-action shotgun, also called "slide action repeating shotgun" is a specialization at ECI. This weapon has a single barrel into which cartridges are chambered by pulling the pump handle and spent cartridges are expelled by the same sliding action. The shots capacity is on the requirement of the customer. The guns made at our factory are light weight, high strength and long life materials. Pump-action guns are used for IED for breaking items form a distance like in case of car bomb. Gun is recognized internationally test from Birmingham Proof House.



Item	Parameter
Caliber	12 Gauge
Barrel	Chrome Molybdenum high grade Steel alloy
Barrel Length	21 inches to 30 inches different options
Receiver	Aluminum 7075-T6/6065
Magazine capacity	Up to 7+1 Rounds on the customer requirements
Surface treatment	All parts are surface treated for a very long life and corrosion resistance purposes.
Chamber length	2 ¾ & 3"
Firing mode	Pump action
Safety	Safe lock/ Manual thumb safety
Cartridges	12 Bore shots LG, SG, No 4,6 & 8
Colour	Black/Silver
Magazine	Metallic
Material preference	Butt stock & pistol grip material is high impact synthetic polymer
Weight	Less than 3.4 Kg @ 30 inches barrel

BD UC05 CABLE DETECTOR

BD UC 05 Cable Detector is designed to detect surface or buried command wires used to initiate Command Wire Improvised Explosive Devices (CWIED). It is a very effective tool for Counter Terrorist Search (CTS) operations and for route clearance for the convoys. The detector has been designed for use by suitably trained and equipped teams in Counter Improvised Explosive Device (CIED) operations. The system has a 39 cm detector head assembly with sensors installed. A center shaft assembly (60 cm) carries the detector head and the angle of the detector head can be changed for comfortable operation.



Specifications

Title	Data
Detection	Min 50 meters cable down to 20 cm in most soil conditions
Control unit functions	LED and audio control functions and alarm.
Power	3 x Batteries
Battery Life	Min 7-8 hours
Operating Weight	4 kg
Equipment Contents	Detector Head, Control Unit, Centre Shaft Assembly, Test Piece, Earpiece, Transit Case.

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