



AL EFAH'S EOD/IEDD SOLUTIONS



Tools and equipment developed by EOD & IEDD trained Engineers.

Safety, Quality and reliability delivered at affordable pricing.

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ELECTRIC INITIATORS



Remote Wireless Initiation Systems



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 different configurations: Both MCU and the RFUs have waterproof Aluminum housing having UHF transceivers, along with the micro controller based control circuitry: RFUs decode and execute the commands received from MCU and acknowledge the status and results to MCU.

Model RDS-6711 Special Demolition operations; with up to 20 RFUs. This system can also be used for EOD operations. It has a kit of solar panels for extended RFUs time for more than 72 hours.

Model RDS-6713 Demolition and Battle Field Simulation operations; with up to five RFU; each RFU further having 10 output.

Model MEC-6715 This model is specially designed for a day's EOD operations with five RFUs.



Main Features

- *Close loop communication to confirm status and detonation.*
- *Fully tested for EMC & environmental standards MIL STD 810E.*
- *Operating range up to 5 Km in urban areas and upto 25 Km 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 programmed time.*
- *Both wireless and land line options.*
- *MCU can be programmed to fire sequence of different RFUs.*
- *Self- Piercing rugged wire connectors.*
- *Smart Battery charging /Night Illumination.*

Safety Features

- *Designed for maximum reliability & safety.*
- *Two hands operation.*
- *Arming delay safety timer.*
- *Charging Capacitor is isolated from firing circuit until not commanded.*
- *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)

- *Self-test Status (Battery, RF/Land Line, Detonator status).*
- *Lithium-Ion battery module.*
- *Communication through Microwave or land Line.*
- *Monitor and Program, Remote Firing Units.*
- *Status display (Battery, RF/LL, Detonator) of RFUs.*
- *Encrypted communication with RFUs.*
- *Night Illumination.*

Remote Firing Unit (RFU)

- *Self-Test circuitry.*
- *Lithium-Ion battery module.*
- *Communication through Microwave or Land Line.*
- *Self- Piercing rugged wire connectors.*
- *Encrypted communication.*
- *LED Indicators (Battery, RF/Land Line, Detonator).*



Detailed Technical Specifications

				
frequency	UHF (429MHz to 436MHz)		UHF	
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 fires 10 circuits.	Up to 81	
Ops Temp. range	-20°C to +55°C			
Store Temp.	-30°C to +65°C			
Humidity	95% RH at 40°C			
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		220 x 100 x 70 mm	
MCU weight	2.3 Kg (with battery) (depending on backup time)		1.25 Kg with battery	
Data entry I/P	12 Keys Key Pad			
MCU Battery	12 V, Lithium-Ion rechargeable		12 Volts NiMH	
LCD	4 x 16 characters, with backlit			
RX Sensitivity	-119dBm			
Weight RFU	2.1 Kg with battery	4.4 Kg	0.8 Kg	
	with lesser backup time weight can be reduced			
Battery RFU	12 V, LiFeO4 rechargeable		12 Volts Lithium	
Battery Time RFU	75 Hours (Many months with solar charging option)	Up to 20 hours	6 hours continuous	
Antenna Impedance	50 Ohms			
Available energy	0.5 Joules		1.7 Joules	
Firing Circuit	Capacitive Discharge			
Battery charging	Utility Power, Vehicle or Solar		Utility Power and Vehicle	
Transit Case	ABS shock/water proof			



Accessories with remote control Detonation system

Standard Accessories

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.

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 Approx.



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



Remote Initiation System RDS-6722



RDS-6722 is a Remote Wireless Initiation System, specially designed for EOD/IEDD operations. The system has a hand held Master Control Unit (MCU) and up to twenty Remote Firing Units (RFUs). The RFU could be selected to have a single or two firing ports /channels or the kit can have a set of mixed RFU types. System has encrypted digital two-way communication. MCU can command its slave RFUs, individually or initiate them in a programmed sequence. The RFU decodes and executes MCU's commands but also can report its battery or continuity status. The system is easy to operate through an LCD driven menu; yet the system is very safe. There is an arming delay safety timer, operator can send fire command with two hands and the firing port remains inhibited before the fire command.

Key features

- *Two-way close loop encrypted communication.*
- *Dual and Single firing port in RFUs.*
- *Self-test facility before operations.*
- *Urban range 2 to 3 Km & Line of sight 10 Km*
- *Installs on IED Disruptors or EOD Robots.*
- *LEDs indications & LCD Menu.*
- *Confirmation of detonator / EOD cartridge status and detonation.*



System Specifications

Frequency	UHF	Modulation	FSK
Range Urban	2 to 3 Km	Range Line of sight	10 Km
Ops Temperature	-10°C to +50°C	Store Temperature	-10°C to +55°C
Humidity	95% RH at 40°C	System Sealing	IP-67
Body material	Aluminum	Transit Case	Hard
Configuration	1x MCU 1 or up to 20 RFUs	Self-test	Both in MCU & RFUs
Battery (MCU & RFUs)	12V/1000mAH, Lithium-Ion battery	Battery charging options	Utility Power and Vehicle
Max. TX power	2 watts	Antenna	50 Ohms
RX Sensitivity	119 dBm		
Hand held Master Control Unit (MCU)			
<p>The MCU has a waterproof Aluminum housing having the UHF transceiver. It has micro controller based control circuitry with digital communication which enables encryption. It can fire individual RFU or can be programmed to fire multiple RFUs in a sequential firing of preset delays.</p>			
MCU weight Kg	1.25 (with battery)	MCU Size mm	210 x 110 x 55 mm
LCD	4 x 16 characters/ backlit	Data entry I/P	12 Keys Keypad
Remote Firing Unit (RFU)			
<p>The Remote Firing Units have water proof aluminum housing. It has a matched UHF transceiver with the MCU. The RFUs decode and execute the commands received from MCU and also can be asked to report its status for the battery and the continuity of connected detonator or the EOD cartridge's bridge. The RFUs can be with a single or two output ports. In the dual output port, two demolition charges or two IED disruptors/ Dearmors can be connected. However only one port from the two ports of the RFUs can fire at one time.</p>			
Weight RFU	1 Kg with battery	RFU Size	170 x 105 x 70 mm
Firing Circuit	Capacitive discharge	Bridge Firing energy	From 2 J to up to 12 J
RFU firing ports	Single & dual	Max line impedance	60 Ω RFU to detonator
Safety features			
<ul style="list-style-type: none"> • Two hands MCU's firing command. • Cancellation of firing command within the specified time. • Arming delay safety timer. Minimum 1 minute • Reliable isolation of charging capacitor from firing circuit. • Unique serial numbers and use of encrypted system. 			



Accessories & Tailoring 67 Series initiators

LCD Menu language

The standard menu of the LCD to operate the MCU is in English language. To make the system easy to use, the menu can also be provided in few other Language.

RDS-6722 Kit RFUs Selection

A system is configured with one or up to twenty RFUs. As there are two RFU types- Single and dual output port; the typical Kit configuration is to select one dual port RFU vs two,



three or four single port RFUs.

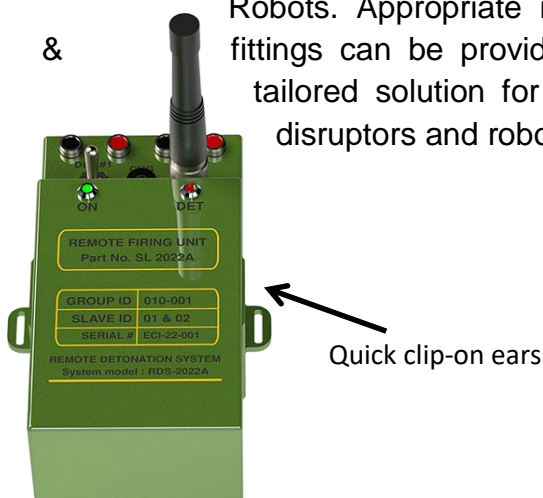
SL-6722A – With single firing port



SL-6722B – With Dual firing port

Mounting on Disruptor or Robot

The RFUs if installed with the disruptor provides flexibility and speed of IEDD operation. We offer to provide mountings for compatible IED Disruptors or the EOD Robots. Appropriate mounting fittings can be provided for a tailored solution for different disruptors and robots.





Standard Accessories (with no cost)

1. **Transit case.** Each system is supplied in a rugged case; which houses all the items in cut foam packing where the operator has ease of packing after the operation. Any specialized packing can also be provided extra cost.
2. **Chargers.** Utility chargers for each RFU and MCU are provided for charging from the mains. MCU is provided with one additional Vehicle charger.
3. **Manuals.** A detailed manual in English is provided. However, on user's request the operational manual in Arabic language can also be provided.

Optional items (with additional cost)

4. **Range extension Tripod & Antenna.** A tripod and antenna can be provided to extend the range or when in a very thickly vegetated area. This raises the height of the receiver antenna.



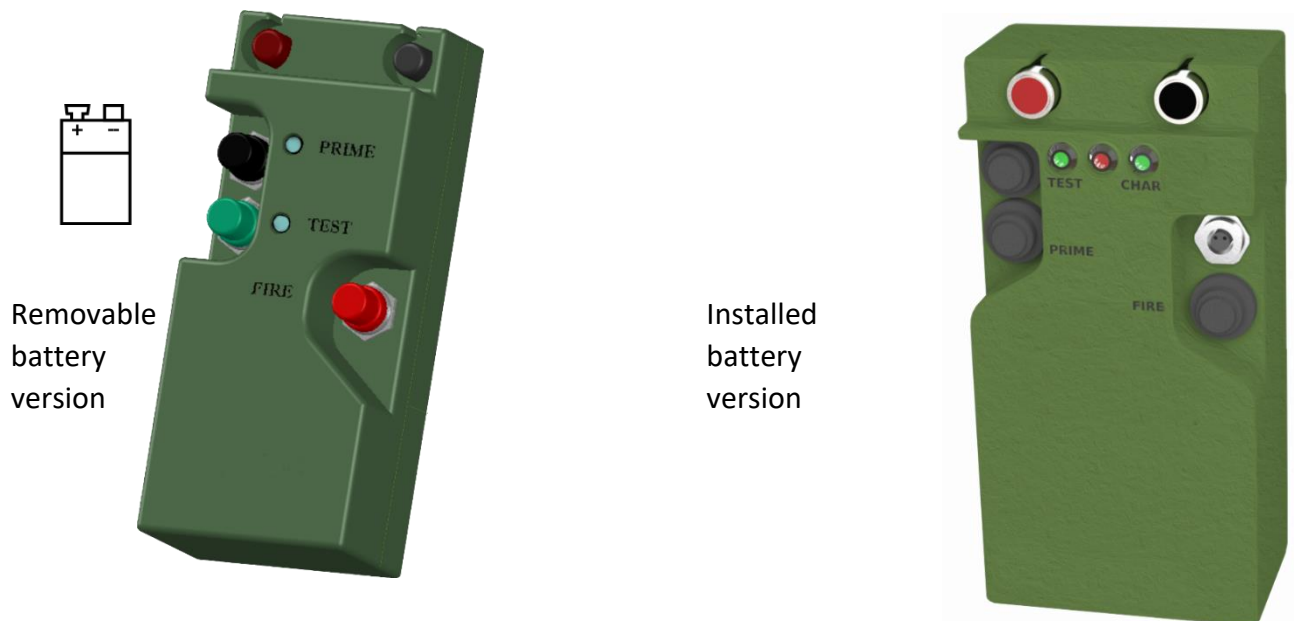
5. **Self-piercing firing port connectors.** The RFU's firing port connector can be provided with special pyramid shaped teeth for piercing the wire insulation. This obviates the need for wire stripping and may accommodate till 40SWG conductor.





Electronic Exploder (Mini Shrike)

EES-661 & EES-662



The single circuit Electronic Exploder or Mini Shrike; is a light weight two hands fire system. It has spring-loaded terminals for quick connection of firing cable. The system initially checks that the detonator or cartridge is connected and shows desired continuity. Before fire, the exploder is primed to charge a firing capacitor. Firing is done by simultaneous pressing of the Fire and Prime buttons. The firing circuit always remains inhibited from power source if the system is not primed. Unit is de-primed through a discharge circuit if not fired.

Two versions are offered – First is with removable battery type which uses two commercially availed PP3 style batteries as modle EES-661. PP3 style batteries can be re-chargeable as well as non-rechargeable. The second version has permanently installed Li-Ion battery which is a rechargeable battery with a charging port as model no EES-662.

Specifications

- *Aluminium body for drop test requirement of Military standards*
- *Two versions of battery option and customization also offered.*
- *Indicator LEDs - to confirm continuity OK and confirm Primed.*
- *Dust tight and water-resistant.*
- *Two pushbuttons need to be depressed with two hands to fire.*



Item	Inbuilt battery Model EES-662	Removable battery Model EES-661
Output Volts	300 to 400 V	
Sealing	IP66	
Drop test	4 feet drop test Aluminum body	
Weight	Less than 550 g	
Output connections	Typically, spring-loaded terminals for quick connection OR Self-piercing binding posts as optional.	
Battery	Built-in Li-Ion Rechargeable & Battery Management system 12VDC 1000 mA Charging through external port Charging 2-3 hours	Commercially available Style PP3 Voltage: 9 Volts Chargeable or non-rechargeable Chemistry Lithium, Carbon-Zinc, NiCd, NiMH, Lithium-Ion
Battery charger	External through connector	Battery removed for charging
Dimensions (mm)	160 x 80 x 50	160 x 65 x 45
Operating temp	-20°C to 60°C	-20°C to 55°C
Firing Energy	6 J	8 J
Time to prime	< 5 sec	
Number of firings with one battery	> 200	
Cable length	Fires up to 4 Km when using DEF STAN 61-12 Part 17 firing cable	
De-prime time	6 msec	
Shoulder Carry bag	Yes	
Optional items	<ul style="list-style-type: none"> • Hard case. • Self-piercing binding posts. • Demolition wire on metal reel. • Customization for firing energy. • Car battery charger for EES-662 	





Electronic Exploder (Shrike) EES-665



Electronic Exploder Dynamo also referred to as Shrike; is light weight two hands fire system to fire four separate circuits. It replaces the old Dynamo Condensers based Exploders. It can check continuity of firing circuit before fire. The model is small and silent in use.

It provides sufficient energy 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 4 Km, using a demolition cable. The shrike has a strong, light and splash proof housing and employs solid state electronic circuitry for reliability.

- ***RFI shielded electronic circuit.***
- ***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 fire.***
- ***Output remains inhibited before fire button is not depressed.***



Specifications

Item	Specification	Item	Specification
Max Output Volts	750 Volts	Normal output	400 Volts
Output	4 circuits	Output energy	6-10 Joules typical
Demolition wire used	DEF STAN 61-12 Part 17	Demolition wire length	4 Km
Output Load	400 Ohms each circuit	Battery Pack	2xPP3 removable. Both re-chargeable or the alkaline batteries can be used.
Firing with one alkaline battery	100+	Firing with one re-charged battery	50+
Weight	Up to 1 Kg	Waterproofed	IP65

Tailoring

- *System with output energy as per the user's requirement up to 20 Joules.*
- *An installed rechargeable cells system for a bulk order.*
- *Rack mounted system for static lab testing applications.*

Standard Accessories

- *Olive Green soft shoulder carrying case.*
- *Instructions card.*
- *Charger for PP3 battery*
- *Hard case*
- *Manual.*



Firing / Demolition Cable



Firing Cables used to initiate an electro explosive device must be safe and reliable. Our Firing Cable meets the requirements of UK government DEF STAN 61-12 Part 17. The cable has flexible PVC sheath and is of high strength to qualify for field environment of the demolition or EOD operational task. The cable can also be offered on the reel drum and as per the specialized requirements of the client. The cable can be use with our Shrike Electronic Exploder EES-665, ECI-161 or the Remote Detonation system.




- *Cable meets the requirements of UK DEF STAN 61-12 part 17.*
- *Twisted Black and brown cable or any other color on user requirement.*
- *Any length option on client requirement.*
- *Different drum options are available as per the length of the cable.*
- *Reel from 50 meters to 500 meters are offered.*
- *Pair of spring loaded Binding posts provided for quick connection.*



Three type of Cable Specifications

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 per core	Approx Weight Kg/Km
24	0.2	0.65 nom	2.44 nom	Lower Limit 2.39 Upper Limit 2.49	4.9 nom	$\leq 30 \Omega/\text{km}$	28
16	0.2	0.6 nom	2.13 Nom	Lower Limit 2.08 Upper Limit 2.23	4.3 nom	$\leq 45 \Omega/\text{km}$	26
07	0.2	0.3 Nom	1.20 nom	Lower Limit 1.17 Upper Limit 1.23	2.4 nom	$\leq 100 \Omega/\text{km}$	15

Reel / Drum options

			
1M1	1M2	1M3	2M1
Cable length upto 200 meters	Cable length upto 300 meters	Cable length upto 500 meters	Cable length 400 to 750 meters

Ordering information

To order with part no ECR-SS-LLL-DDD

SS- No of cable strands

LLL- Length in meters

DDD- Drum type



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