Soldier-as-a-Platform RESM capability for the future Force

ESROE's MicroESM system leverages a software-first, ultra low-SWAP design, enabling individual soldiers to serve as mobile platforms for advanced Radar Electronic Support Measures (RESM). Troops can detect, identify, and direction find radar threats at the tactical edge, far beyond the reach of traditional, large, and costly RESM systems that are typically limited to high-value platforms. By reducing operator burden Soldier-as-a-Platform MicroESM expands electronic surveillance across the battlefield, delivering agile, distributed ELINT that enhances force-wide situational awareness and provides critical, real-time intelligence where it matters most.

Sensor System at a glance:

- 2 – 18 GHz frequency range
- Fully automatic operation
- Low power
- 7° rms bearing accuracy
- Full 360° azimuth coverage from 4 antennas
- Sensor weight < 2 Kg
- Highly affordable

Soldier-as-a-Platform MicroESM can be operated in three different configurations for:

Local operation - where the soldier operates the MicroESM system locally, while on the move, providing immediate intelligence and situational awareness on the ground.

Remote operation - where the soldier is a platform for the MicroESM sensor which sends data to a remote operator at a different location. This removes the need for frontline SQEP and dramatically reduces training requirements as an individual can be responsible for controlling multiple MicroESM systems simultaneously.

Data collection only - where the soldier is a platform for the data gathering MicroESM sensor that provides intelligence post operation.

Automated radar identification and direction
Identity and direction of radar signals is displayed on a map via the tablet-based app that the user can interact with locally through the touch screen, or via the computer in a remote location. Tablet not required for data collection only missions or remote operation, to further reduce SWAPC.

Real-time pulse logging and reprocessing facility
All measured radar pulse data can be continuously saved to internal or external storage for offline analysis. Logged pulse data can also be reprocessed, providing a typically faster than real-time view of recorded missions.

Designed for compatibility
Soldier-as-a-Platform MicroESM systems are compatible with a range of small computing platforms and displays that can be tailored to mission requirements.

Modular and customisable
The MicroESM system architecture is modular enabling customisation to the operational requirement. Hardware components utilise the MOLLE system providing a familiar method of augmentation to the soldiers' equipment.

Flexible operation
If required the system can employ secure wireless connectivity, allowing operators to monitor and control the MicroESM unit from any location. Data collection systems do not require connectivity.

Functionality	Metrics	Description
Frequency Range	2.0 GHz to 18 GHz	Switches automatically between 2 - 12 and 12 - 18 GHz bands
Frequency Measurement	3.5 MHz (2 - 12 GHz) 2.5 MHz (12 - 18 GHz)	Measurement resolution Accuracy ≤ 2 MHz rms
Enhanced Frequency Measurement	0.85 MHz	Measurement resolution and accuracy possible for pulse density < 100 000 pulses per second
Azimuth Coverage	360 degrees	
Bearing Measurement	7 degrees	Typical rms accuracy
System Sensitivity	-55 dBm -70 dBm	With bearing measurement For CW signals without bearing measurement
Dynamic Range	50 dB	
Minimum Pulse Width	40 ns (2 - 12 GHz) 50 ns (12 - 18 GHz)	
Time of Arrival	20 ns (2 - 12 GHz) 25 ns (12 - 18 GHz)	Measurement resolution Accuracy ≤ 20 ns rms
Environment Pulse Density	Up to 200,000 pulses per second*	Fast response time up to stated density, graceful degradation thereafter.
Emitter Library Capacity	200 emitter mode lines*	Capable of expansion
Reported Emitters	100 simultaneous emitters*	Capable of expansion
Operating Voltage Range	10 - 20V DC (12V nominal)	16-36V with alternative supply
Power Consumption	< 20W < 10W	Full operating mode (Main unit) Standard mode (Main unit)
Size	< 18cm x 18cm x 10cm	Length x depth x height
Weight	< 2 Kg	Main unit
Operating Temperature Range	-20 degrees C to +48 degrees C	
Environmental Certification	IP 68	Main unit - designed for long term operation at sea, it is also tested for vibration, shock and immersion (further details on request).
Data Logging	3 hrs, typical based on tablet computer	Continuous logging of pulse data. Logging also includes emitter track data and library data generated by the system.

* These values are fundamentally dependent on computer performance and can be improved with a higher performance processor.

For further information please contact:

Email: microesm@esroe.com
Call: +44 (0)1329 237285
Visit: www.esroe.com