ESROE
identifying the spectrum

MicroESM 1t Miniature Radar ESM

Technical Datasheet

Features

2 – 18 GHz frequency range

Fully automatic operation

Battery powered

10° rms bearing accuracy

Full 360° azimuth coverage from 4 antennas

System weight < 2 Kg (excluding tablet display)

Highly affordable

Product Description

The MicroESM 1t miniature radar ESM system is the first fully functional system of its type. Combining a ultra-lightweight, 4-channel, crystal video/digital receiver with ESROE's GLAMDRING automatic processing software running on a tablet computer, it automatically identifies radar emitters that have been programmed into its radar library and reports unknown radar emitters whilst adding them to its internal library. Although it can be powered from an external 12V power supply, if required, it has been designed for use with an external swappable battery pack that provides power for up to 12 hours of typical continuous operational use. Automatic reporting and identification of radar signals on a map display is performed by a tablet based app with which the user can interact through the touch screen. Direction finding of detected signals is achieved using the four antennas. Radar libraries can be loaded from internal or external storage, through the tablet touch screen interface, and library entries created automatically by the system for unknown radar emitters can be saved to the internal or external storage. A pulse logging facility is also available whereby all measured radar pulse data can be continuously saved to internal or external storage for later offline analysis. Logged pulse data can be replayed by the user through the tablet display providing typically a faster than real time view of recorded missions.

The standard system comes complete with ruggedized tablet display, two ruggedized 9Ah battery packs and charger, lightweight carbon fibre tripod and ruggedized cables.

Technical Specification

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	10 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)	
Power Consumption	< 20W < 10W	*Full operating mode (Main unit)* *Standby mode (Main unit)*
Size	180mm x 180mm x 96mm	*Length x depth x height*
Weight	< 2 Kg 1 Kg 0.62 Kg	*Main unit* *Tablet display* *9 Ah battery pack*
Operating Temperature Range	-20 degrees C to +48 degrees C	
Environmental Certification	IP 68 IP 65	*Main unit* *Tablet display*
Operational Battery Life LIPS 14 battery BB 2590 battery	 Up to 3 hrs Up to 12 hours Up to 8 hrs	 *Main unit* *Main unit* *Tablet display*
Data Logging	3 hrs	*Continuous logging of pulse data to tablet internal storage at maximum pulse density (22.4MB/sec)* *Logging also includes emitter track data and library data generated by the system*

** These values are fundamentally dependent on Tablet performance and can be higher with a higher performance tablet*

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