



IFF AND SSR INTERROGATOR FAMILY

The SIR-M is a state-of-the-art IFF (Identification Friend or Foe) and MSSR (Monopulse Secondary Surveillance Radar) interrogator family for naval and air defence applications.

The SIR-M interrogator comprises a single box with Modes 1, 2, 3/A, C, S (up to Level 2), 4 and 5 (up to Level 2) capabilities, compliant with military standards NATO STANAG 4193 Part I, II, III, IV, V and VI, US DoD AIMS 03-1000A (through change note 3); and also with the civilian requirements resulting from ICAO Annex 10 and EUROCONTROL recommendations.

The SIR-M Interrogator can be associated with different antennas according to customer requirements. These include rotating and non-rotating antennas for either naval or groundbased applications.

The system is designed “fitted for” Mode 4 and 5, but can also be provided without these modes, ready for future growth in capability.

The SIR-M Interrogators are in-service, integrated on a wide variety of land (fixed and transportable) and naval systems (long and medium range and multifunction radars) or in a stand-alone configuration to detect co-operative targets up to 256 Nm. The powerful processing platform is based on COTS equipment, and is completely software programmable in order to exploit improvements of commercial platforms and prevent obsolescence problems. In addition, it provides all programmable functions of the transmitter and receiver units.

The modular architecture with digital programmable signal and data processing, supports customized configurations and performance optimization for applications in different applications and domains (naval, land and expeditionary). The SIR-M IFF Interrogator family, depending on the optional system configuration, can operate in Monopulse SSR Mode S Enhanced Surveillance up to full Mode-S data link operation, employing level 5 transponders.

No hardware changes are required to upgrade the system from one configuration to another.

SIR-M

The family comprises:

SIR-M-C (Compact Configuration)

IFF & SSR Interrogator with Modes 1, 2, 3/A, C, S (up to Level 2), 4 and 5 (up to Level 2) capabilities, for mediumrange and long-range applications, for transportable ground and naval platforms.

SIR-M-E (Extended Configuration)

IFF & SSR Interrogator with Modes 1, 2, 3/A, C, S (up to Level 2), 4 and 5 (up to Level 2) capabilities, for early warning radars and long-range applications, for groundbased and naval platforms.

SIR-M-PA (Phased Array Configuration)

IFF & SSR Interrogator with Modes 1, 2, 3/A, C, S (up to Lev. 2), 4 and 5 (up to Level 2) capabilities provided with No Rotating Phased Array antenna (360 degrees, electronic beam steering antenna) for early warning radars and longrange applications, for ground-based and naval platforms.

All SIR-M configurations have been designed to process up to 250 real targets per second (i.e., 2,000 real targets per scan with a 7.5rpm rotating antenna). This provides target/track information to the local operator, and also to other civilian and military users networked with SIR-M's architecture.

The SIR-M family offers optional system configurations. It can operate in SSR Mode-S Enhanced Surveillance up to full Mode-S data link operation employing Level 5 transponders.

SIR-M is also designed to meet the harsh TEMPEST standards and EMC requirements of MIL-STD-461E.

MAIN FEATURES

Use of state-of-the-art technology:

- Latest generation of RF power transistors
- Very Large Scale Integration (SMD technique)
- Latest generation processors and architectures
- Various antenna solutions: rotating and non-rotating
- BITE and status reporting with Malfunction detection at LRU level
- Auto test procedure for receiver channel
- Test Target Generator (RF Signal).

TECHNICAL SPECIFICATIONS

- Environmental conditions MIL-STD-810 E
- Operating temperature -0°C to +50°C
- Electromagnetic compatibility MIL-STD-461E
- Sensitivity
 - MkXII: better than -84dBm
 - Mode S: better than -84dBm
 - Mode 5: better than -90dBm
- Dynamic range from MTL to -22dBm
- Output power better than 33 dBW
- Maintainability & Testability MTTR: < 30 min
- Input power 115VAC/220VAC.

FAMILY CHARACTERISTICS: TRANSMITTER UNIT

- Technology: Full solid-state with plug-in modules
- TX frequency: 1030MHz \pm 0.01MHz
- TX Duty Cycle: High Power Duty Cycle
- Mode S Enhanced in accordance with ICAO Annex 10 and Eurocontrol requirements
- Power Control: 12 dB range, -2 dB steps
- Modulations: PPM, BPSK, MSK.

FAMILY CHARACTERISTICS: RECEIVER UNIT

- Technology: Full solid-state and plug-in devices
- 2 or 3 logarithm channel configurations
- Center Frequency: 1090 \pm 0.1 MHz
- Frequency Response: STANAG/DOD AIMS/ICAO compliant
- DOD AIMS/STANAG Anti Jam compliant.

FAMILY DIMENSIONS

- SIR-M-E/PA cabinet (W x H x D)
 - 550mm x 1078mm x 650mm
- SIR-M-C cabinet (W x H x D)
 - 480mm x 400mm x 600mm.