



# APS-143G Radar Series

Intelligence, Surveillance and Reconnaissance Radar



The APS-143G radar is the latest Intelligence, Surveillance and Reconnaissance (ISR) radar designed, built and customized by Telephonics. Our APS-143G is designed with ISR mission requirements in mind and incorporates the latest performance, multi-function design and small target detection capabilities available today.

## Multi-Function Design

A unique radar design provides superior imaging, target characteristic assessment, extended detection ranges and operational mode flexibility. With a full suite of maritime, overland and air surveillance capabilities, operators will be able to meet critical, ever-growing ISR demands.

## True Multi-Mission, Multi-Domain Radar

Telephonics' APS-143G radar is specifically designed for long-range, multi-mission ISR functionality, while providing situational awareness across all domains. The radar utilizes key features that enhance the operational performance of the system and includes the following:

- 8 kW of peak power and 400 W of average power extend target detection ranges
- Dual Vertical and Horizontal Polarization antennas provide operational versatility for target detection and imaging characteristics



APS-143G land imaging Stripmap mode.

- Back-to-back antennas increase scan rates to provide accelerated timelines for target detection and tracking performance, enabling combined and dual simultaneous mode operations

# Multi-Mission Capabilities



King Air B200T

## Additional Capabilities

- 3-channel Ground Moving Target Indicator (GMTI) antenna provides overland target detection
- Tracks using space time adaptive processing clutter cancellation techniques which are overlaid on a Doppler Beam Sharpened (DBS) image generated simultaneously
- Inertial Measurement Unit (IMU) provides precision motion compensation for well focused imagery
- Extended bandwidth and a precision matched filter formed with an optical delay line provide high-resolution imaging
- High-speed waveguide switch facilitates simultaneous, dual-mode operation on either a scan-interleaved basis or by switching between the two antennas within a dual 360° scan-to-video card for independent crew viewing
- Fully integrated Identification Friend or Foe Interrogator (IFFI) option automatically adapts to high-antenna rotation rates and correlates with air surveillance radar tracks



Ground Moving Target Indicator (GMTI) mode.



APS-143G Synthetic Aperture Radar (SAR) Stripmap comparison to Google maps.

# Optimized Mission Analysis



Sea Spot Inverse Synthetic Aperture Radar (ISAR) mode.

## Operator & Crew Situational Awareness

- Operator selectable, track enabled, track inhibit and filter windows optimize mission analysis and de-clutter the display
- Improved landmass and clutter rejection further reduce operator workload
- Operators can narrow their search by using tracks of interest with actionable information via A-Scan and Sea Spot classification aids
- Multi-mission operational display capability is designed to feed two separate displays with different radar modes



CP-140 Aurora

## Specifications

Item	Weight (kg/lb.)	Dimensions (cm/in.)		
		L	W	H
Antenna/Pedestal Unit (A/P)	48/106	102/40	102/40	50.8/20
Microwave Front End (MFE)	21/46	51.5/20.3	38/15.0	18.5/7.3
Receiver/Transmitter (R/T)	41/90	60/23.6	39/15.35	25/9.9
Signal Processor (SP)	36/79	59/23.1	39/15.35	30/11.8
Total Baseline Radar	146/333			
Radar Digital Data Recorder (Optional)	9/20			
IFFI (Optional)	42/92	72/28.4	44.2/17.4	33.3/13.1

Radar Activity: Back to Back Antennas	Dual Independent Video Cards	
	1st Display (e.g. Radar Operator Display)	2nd Display (e.g. Flight Crew, or radar operator Display #2)
Combined Modes	Wide Area Surveillance (WAS) or Enhanced Small Target Detection (ESTD)	Navigation or Weather
Interleaved Modes	- A-Scan with WAS or ESTD - Search and Rescue Transponder (SART) and WAS	None
Simultaneous Modes	IFFI with WAS, ESTD	Navigation or Weather
ESTD Mode with Primary and Secondary Antenna Switching	ESTD (240° on Primary)	ESTD (120° on Secondary)

# Intelligence, Surveillance and Reconnaissance Radar



## Mode Capabilities

Mission	Mode	Capability
Overland	GMTI	Detection and tracking of land-based moving targets overlaid on a DBS ground image or on a pre-loaded map (range >65 NM, 1,000 targets/scan)
	SAR Imaging (Stripmap and Spotlight)	Imaging of specific landmasses and littoral zones for area analysis (range >10 NM, 0.4 m resolution)
	Vertical and Horizontal Polarization Imaging	Greater target definition and analysis
Maritime	WAS	Anti-surface warfare and secondary lookup air surveillance (200 NM, >300 targets)
	ESTD	Small craft detection and search and rescue (>45 NM, >300 targets)
	ISAR or Sea Spot	Range profiling while scanning (A-Scan) for target detection (200 NM)
	Coastline Mapping	Aircraft navigation and GPS denied secondary navigation (200 NM)
Operational	Weather Mapping	Detection of current weather activities (200 NM)
	SART	Emergency detection of down crew and in-flight navigation cues for recovery (trigger and receive >35 NM)
	Air-to-Air	Air surveillance that can be integrated with the IFFI option
Option	IFFI	Aircraft detection and location (200 NM, 300 targets)



Bombardier Global 5000

## Customizable For Your Mission

The APS-143G radar is comprised of five Line Replaceable Units (LRUs) and two optional LRUs. Telephonics provides two antenna size options for the APS-143G. The APS-143G(V1) measures 40 inches by 20 inches and is designed for large surveillance aircraft. The APS-143G(V2) is a half-height option, measuring 40 inches by 14 inches and is designed for small surveillance aircraft installations with lower fuselage and belly mounts.

For additional information, contact Telephonics at 631.755.7000 or visit [www.telephonics.com](http://www.telephonics.com).