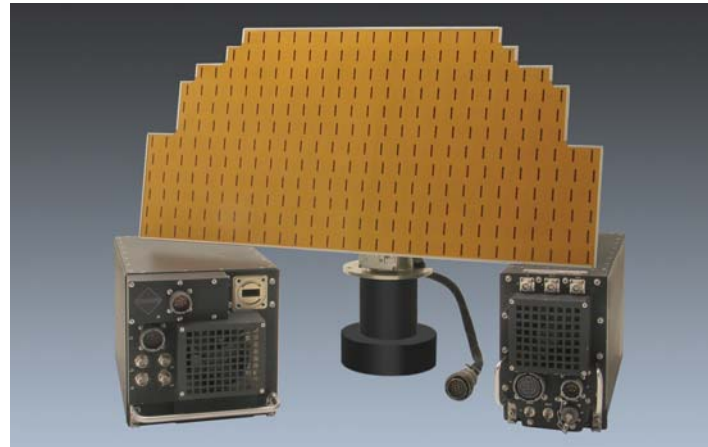


# RDR-1700B

## Search, Surveillance, Tracking, Imaging and Weather Avoidance Radar System



**T**elephonics RDR-1700B Maritime Surveillance and Imaging Radar is the ideal choice for manned and unmanned rotary and fixed-wing aircraft.

The RDR-1700B is a 1 kW X-Band, search radar delivering excellent performance and the ability to search, detect, and track multiple targets during over water surveillance.

RDR-1700B enables critical maritime missions including:

- Airborne Maritime Patrol
- Search and Rescue
- Maritime Interdiction
- EEZ (Economic Exclusion Zone) Patrol
- Contraband/Illegal Immigration Control
- Fisheries Protection
- Integrated AIS

### **Rugged and Lightweight**

The RDR-1700B's three, primary Line Replaceable Units (LRUs) are ruggedly constructed to withstand the rigors of long surveillance missions on helicopter and

fixed-wing maritime patrol aircraft. Lightweight, flat plate array, corporate fed antennas can be customized to suit any installation. All LRUs are tested to DO-160D environmental specifications. For a radar of its capability, it is extremely lightweight (<75 lbs/34 kg), low prime power (625 watts), highly reliable and cost effective.

### **Search, Track and Mapping**

In the sea search mode, the radar will detect and display surface targets at various ranges. The system tracks 200 targets and displays the operator selected tracked targets data. The RDR-1700B provides terrain mapping to detect and display surface objects such as land masses, land/water transitions and large prominent objects.

### **Weather Avoidance**

The RDR-1700B furnishes continuous weather information relative to rainfall rate, thunderstorms and other

precipitation such as wet hail or wet snow. The 4-color display provides a means to determine the relative density of the rainfall areas.

### **SART Beacon**

The RDR-1700B is capable of interrogating and receiving pulses from SART beacons that are in use by the USCG for private boating and commercial shipping. The system interrogates and receives pulses from SART beacons at up to 15 nm. Asynchronous replies can be received out to 60 nm.

### **Display Modes**

The RDR-1700B provides two display stabilization modes: aircraft stabilized and ground stabilized. In all display modes, a radial strobe is output indicating the aircraft's heading.

### **SAR and ISAR Modes**

The RDR-1700B provides three modes for imaging targets to aid in the identification of target types. Inverse Synthetic Aperture Radar (ISAR), strip-map and spotlight SAR modes provide high-resolution images of targets or terrain, in both range and cross-range, using pulse compressed waveforms and Doppler processing techniques. ISAR imaging uses target rotational motion to provide the cross-range resolution and stretch-pulse compression to provide one meter range resolution.

*Telephonics provides the best value solution for your lightweight, high performance detection requirements.*

## System Features

### Radar

- Multi-Mode Operation:
  - Surface Search
  - Terrain Mapping
  - SART/Beacon Detection
  - Weather Avoidance
- Programmable Digital Waveforms
- Digital Demodulation
- Digital Pulse Compression
- Target Tracking

### Optional Modes

- ISAR: 1 meter
- Strip-Map SAR: 1, 2, 4 and 8 meter
- Spotlight SAR: 1, 2, 4 and 8 meter

### Situation Display Capability

- Radar PPI Display
- Aircraft Heading Reference
- North Reference
- Fixed Ground Reference (True Motion)
- Variable Display Offset
- Range Rings
- Track Symbology
- Target Marker: Range Bearing or Latitude/Longitude

### Optional Features

- Navigation Waypoint Overlay
- Ground Map Overlay
- Radar Data Recorder

### Interface Capabilities

- Navigational:
  - ARINC 429
  - MIL-STD-1553B
- Output Video:
  - RGB, SXGA (1280x1024)
  - Other Formats Available
- Upgradable Firmware/Software

### Tactical Display Management System Features

- Graphical User Interface
- Trackball or Joystick Operation
- Radar Horizon Indicator
- Readouts of:
  - Target Track Data
  - Radar Status
  - Navigation Data
  - Built-In-Test



Typical RDR-1700B TDMS Display

## System Specifications

### General System Description

- System weight: typically less than 75 lbs/34 kg
- Size: R/T – 3/4 short ATR; I/U 1/2 short ATR; antenna-radome dependent
- Power required: 28V@22A and 115V, 400 Hz@100 mA
- Special features: sector blanking, PRF jitter, frequency agility

### Performance

- Detection: 1 sq. meter target beyond 15 nmi in sea state 3
- Maximum radar range: 120 nmi
- Display range resolution: 0.01 nmi (1 meter for imaging)
- Reliability: 2000 hour MTBF (Airborne Inhabited Cargo)
- DO-160D tested

### Antenna

- Bandwidth: 300 MHz
- Gain: 26 - 31 dB (antenna dependent)
- Sector scan: 45° to 300° or continuous 360° scan (operator selectable) 28, 45, 90 deg/sec
- Stabilization: ±30°
- Searchlight for ISAR/SAR antenna steering

### Transmitter

- Peak Power: 1 kW at MPM output
- PRF: multiple PRF up to 7000 Hz

### Receiver

- Receiver noise figure: 2.0 dB max at the LNA
- Bandwidth: matched to pulse width
- Processing: STC at RF under operator control
- Automatic Gain Control (AGC) controls receiver gain over temperature

### Display and Processing

- Track-While-Scan with automatic track initiate
- Range scales: short, 30, 60, 120 nmi
- Display Formats: 800 x 800 4-bit grayscale radar video and 1280 x 1024, 8-bit color graphics
- Weighted digital compressed pulse width
- Standard interfaces available to allow integration/operation with onboard display and control systems
- Standalone consoles available using TDMS GUI with LCD color display

For further information contact:

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