

RANGER® R20SS

Long-Range Ground and
Coastal Surveillance Radar

APPLICATIONS

BORDER SECURITY

COASTAL SURVEILLANCE

FORCE PROTECTION

INDUSTRIAL FACILITY

CRITICAL INFRASTRUCTURE

SECURITY

AIR & SEA PORTS

**VEHICLE & MAN-
PORTABLE
CAPABILITIES**



The FLIR Ranger R20SS is a ground and coastal FMCW radar specifically designed to detect and track personnel, vehicles, and watercraft at ranges up to 60km. Among the fastest scan rates and lowest minimum detection velocity (MDV) radars available, the Ranger R20SS can simultaneously track up to 512 targets moving in any direction at virtually any speed. Low weight, ruggedness, and easy implementation make it an ideal candidate for vehicle applications.

Built on a digital beam-forming architecture, the R20SS provides continuous 90° coverage that includes “track while scan” capabilities for concurrent targets at different bearings. Adaptive, automatic tracking enables easy integration with slew-to-cue cameras, and when deployed with an optional pan/tilt device or in a multi-radar configuration, the R20SS provides 360° coverage. The R20SS includes standard built-in GPS and digital magnetic compass (DMC) for automatic true north alignment and self-positioning on a background map, which is optimal for rapid deployment.

FEATURES

APPLICATION VERSATILITY

Use the Ranger R20SS for mobile or fixed border security, force protection, and coastal surveillance.

ACCURATE TARGET LOCATION

Advanced tracking algorithms enable fast detection and track initiation, resulting in high accuracy and extremely low false alarm rate.

X-BAND SYSTEM RELIABILITY

All-weather X-band operation means minimal effects from adverse precipitation and extreme climate conditions.

LOW SWAP APPLICATIONS

Low SWaP minimizes infrastructure costs, and its low weight and easy implementation makes R20SS ideal for vehicle or man-portable deployment.

MAN-PORTABLE & EASY TO INTEGRATE

R20SS fits in the backpack of a dismounted soldier and requires only one cable and four bolts for integration.

SPECIFICATIONS

R20SS

Operating Frequency	X Band	
Minimum Detection Velocity	> 0.1 m/s min, Vehicles, personnel, rubber rafts, boats	
Target Velocity	0.1 to 44 m/s	
Number of tracks	Up to 512 simultaneous	
Range Accuracy	± 3 m (1 sigma)	
Azimuth Accuracy	± 0.2 deg (1 sigma)	
Scan Rate	2 Hz (90 deg sector)	
Coverage	90° AZ, 5° EL in sector mode, 360° AZ, ± 30° EL in scan mode (with optional pan/tilt device)	
Elevation Control	Yes with optional Pan/Tilt	
Input Power	21-42 VDC	
Communications	Ethernet, wireless, fiber	
XML	Yes (ICD-0100 compatible)	
Mask Zone(s)	Unlimited polygons	
Dimensions	Radar only: 14.7h x 29.6w x 6.0d (inches), 37h x 75w x 14d (cm) Radar with pan/tilt: 29.4h x 29.6w x 6.6d (inches), 75h x 75w x 17d (cm)	
	Standard	Low Power
Weight	40 lbs (18.2 kg) – radar 26.4 lbs (12 kg) – pan/tilt	40 lbs (18.2 kg) – radar 20.7 lbs (9.4 kg) – pan/tilt
Power Consumption (nominal)	245 Watts (radar) ≤ 30 Watts (pan/tilt)	170 Watts (radar) ≤ 30 Watts (pan/tilt)
Operating Range	20 – 30,000 m 20 – 60,000 m (ext range)*	20 – 30,000 m
Detection Range:		
Personnel Walking (1 m² RCS)	Up to 12,000 m	Up to 10,000 m
Rubber Raft (1 m² RCS, ss 3)	Up to 12,000 m	Up to 10,000 m
Patrol Vessel (10 m² RCS, ss 4)	Up to 20,000 m	Up to 16,000 m
Vehicles, Vessels (≥ 30 m² RCS)	Up to 28,000 m	Up to 25,000 m
Vehicles, Vessels (≥ 10,000 m² RCS)	Up to 55,000 m (ext range)	Up to 28,000 m
False Alarm Rate	Very Low	
Temperature	-40° to +60°C (operating), -40° to +70°C (storage)	
Humidity	Up to 100%,	
Weather Sealing	IP 67 Rating – radar. IP 66 – pan/tilt	
Mil Spec	Complies with MIL-STD-810G and MIL-STD-461F	
MTBF	> 28,000 hrs – radar. > 50,000 hrs – pan/tilt	



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