



LONG-RANGE GROUND AND COASTAL SURVEILLANCE RADAR

FLIR Ranger® R20SS

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.

APPLICATIONS

BORDER SECURITY

COASTAL SURVEILLANCE

FORCE PROTECTION

INDUSTRIAL FACILITY

CRITICAL INFRASTRUCTURE SECURITY

AIR & SEA PORTS

VEHICLE & MAN-PORTABLE CAPABILITIES

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	

Note: Detection Range is subject to radar height AGL or ASL



AMERICAS

FLIR Systems, Inc.
Corporate Headquarters
27700 SW Parkway Ave
Wilsonville, OR 97070
Office: +1 877.773.3547

FLIR Systems, Inc.
DC Headquarters
1201 S. Joyce Street
Suite C006
Arlington, VA 22202
Office: +1 703.682.3400

EUROPE

FLIR Systems
2 Kings Hill Avenue - Kings Hill
West Malling, Kent ME19 4AQ
United Kingdom
Office: +44 (0)1732 220 011
Fax: +44 (0)1732 843 707

FLIR Systems AB
Antennvägen 6,
PO Box 737
SE-187 66 Täby
Sweden
Office: +46 (0)8 753 25 00

MIDDLE EAST

FLIR Systems B.V. - Abu Dhabi
Wadi Al Fey St.
Building 60, Office # 302
New Ministries Exit / Khalifa Park Area
Abu Dhabi, U.A.E.
Office: +971 2 666 1561
e-Fax: +1 503 914 1591

FLIR Systems Saudi Arabia
Office 127, First Floor
Akaria Plaza Building, Olaya Street
Riyadh, 11481, Saudi Arabia
Office: +966 11 464 5323
Fax: +966 11 464 0438

ASIA

FLIR Systems Japan K.K.
Meguro Tokyu Bldg. 5F,
2-13-17
Kami-Osaki, Shinagawa-ku.
Tokyo, 141-0021, Japan
Office: +81-3-6721-6648

For More Information contact
surveillance_sales@flir.com

www.flir.com
NASDAQ: FLIR

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