



**LONG-RANGE MULTI-SENSOR
FOR FIXED INSTALLATION**

FLIR Ranger® HRC-MS

The Ranger HRC-MS is a high-resolution mid-wave thermal imaging system built around a large format 640 x 480 array and a choice of powerful continuous-zoom telescopes. Available in its standalone, environmentally hardened enclosure, the system can also integrate an optional high-magnification CCD-TV camera, laser rangefinder, digital magnetic compass and fast accurate pan/tilt mechanism for precise target geo-locating.

Tunable DDE digital image enhancement reveals scene details missed by systems offering only histogram or linear image processing. Designed to support missions for perimeter security, force protection and border surveillance Ranger HRC-MS's cooled detector detects a man-sized target at 10 km and vehicle targets at 20 km. Because FLIR controls the entire supply chain on the critical technology inside, fast service and long-term support come standard.

FEATURES

EXTRA SENSITIVITY FOR SHARPER IMAGERY

Cooled 640 x 480 detector spots man-size targets above 10 km and vehicles above 20 km. Tunable DDE enhancement reveals finer details.

12.5X CONTINUOUS ZOOM

Zoom with autofocus provides sharp image over full continuous range so you never lose sight of the target.

SCALABLE, MODULAR SYSTEM DESIGN

Available with four different thermal imaging alternatives and two different color TV alternatives as well as a number of options such as a laser rangefinder, GPS, and digital magnetic compass.

RUGGED & FIELD-TESTED

Built to MIL-STD-810, Ranger HRC-MS is reliable and deployable in extreme environments, from deserts to arctic conditions.

NETWORK ENABLED

Supports Nexus™ and common Pelco® network control protocols for easy installation and integration into existing networks.

APPLICATIONS

BORDER SECURITY

COASTAL SURVEILLANCE

FORCE PROTECTION

INDUSTRIAL FACILITY

CRITICAL INFRASTRUCTURE SECURITY

AIR & SEA PORTS

VEHICLE & MAN-PORTABLE CAPABILITIES

SPECIFICATIONS

Thermal Imaging	Ranger HRC-E	Ranger HRC-S	Ranger HRC-U	Ranger HRC-X
Field of view; continuous optical zoom	2° (H) x 1.5° (V) to 25° (H) x 18.8° (V) with 22 x 275 mm lens	1.1 (H)° x 0.84° (V) to 14.1° (H) x 10.5° (V) with 39 x 490 mm lens	0.75° (H) x 0.56° (V) to 9.4° (H) x 7.0° (V) with 59 x 735 mm lens	0.5° (H) x 0.38° (V) to 6.3° (H) x 4.7° (V) with 88 x 1100 mm lens
Spatial resolution (IFOV)	0.67 mrad for 22 mm lens - 0.055 mrad for 275 mm lens	0.383 mrad for 39 mm lens - 0.031 mrad for 490 mm lens	0.256 mrad for 59 mm lens - 0.020 mrad for 735 mm lens	0.17 mrad for 88 mm lens - 0.014 mrad for 1100 mm lens
Thermal sensitivity	25 mK	25 mK	25 mK	25 mK
Detector type	MWIR: Indium Antimonide (InSb) or Mercury Cadmium Telluride (MCT)			
Array format	640x512/640x480			
Spectral range	3 to 5 µm			
Field of view	12.5x continuous zoom and four preset positions			
Focus	One shot auto focus and manual focus			
Continuous digital zoom	Yes, up to 16x			
Image processing	Tunable Digital Detail Enhancement (DDE), Histogram Equalization			
System Features				
Built-in test (BIT)	Yes			
Window defrost	Yes			
Auto front lens cover when parked	No	Yes	Yes	Yes
Remote control	RS-232, RS-485 and Ethernet			
Image Presentation				
Analog video	PAL / NTSC selectable			
Power				
Input voltage	28 V ± 4V			
Power consumption	35 W typical (steady state) < 125 W maximum with heaters			
Physical Characteristics				
Camera weight	7.5 kg	9.5 kg	12 kg	12 kg
Camera size (L x W x H)	475 x 235 x 194 mm	475 x 235 x 194 mm	564 x 264 x 303 mm	564 x 264 x 303 mm

Daylight Camera	SR-TV	HD LR-TV 750	HD LR-TV 1000
Image sensor	NTSC 1/4" Color CCD PAL 1/4" Color CCD	Type 1/1.8" Full HD CMOS Color Sensor Full HD 1080p digital video (H.264) PAL analog video NTSC analog video	Type 1/1.8" Full HD CMOS Color Sensor Full HD 1080p digital video (H.264) PAL analog video NTSC analog video
Focal length (Wide to tele)	3.4 mm to 122.4 mm	12.5 mm to 750 mm 25 mm to 1500 mm (with 2x Extender)	16.7 mm to 1000 mm 33.4 mm to 2000 mm (with 2x Extender)
F-number (Wide to tele)	1.6 to 4.5	3.8 to 7.1 7.6 to 14.2 (with 2x Extender)	3.5 to 8.8 7.0 to 18 (with 2x Extender)
Field Of View (H) analog video	1.7°x57.8°	0.54° to 29° ±7% 0.27° to 14.5° ±7% (with 2x Extender)	0.38° to 21° ±7% 0.19° to 10.5° ±7% (with 2x Extender)
Field of view (H) digital video	N/A	0.54° to 29° ±7% 0.27° to 14.5° ±7% (with 2x Extender)	0.38° to 21° ±7% 0.19° to 10.5° ±7% (with 2x Extender)
Optical zoom	36x	60x (nominal) 120x (nominal with 2x Extender)	60x (nominal) 120x (nominal with 2x Extender)
Digital zoom	12x	16x	16x
Min. sensitivity	1.4 lux (1/50 s) B&W Mode: 0.5 lux (1/50) IRC Mode: 0.01 lux (1/3 s)	Color mode <0.2 lux (F/3.8, 1/30sec.) B&W mode <0.1 lux (F/3.8, 1/30sec.)	Color mode <0.2 lux (F/3.8, 1/30sec.) B&W mode <0.1 lux (F/3.8, 1/30sec.)

Pan & Tilt Unit	
Az Range; Az velocity	n x 360°; 0.03° - 65° /sec continuous
EI Range; EI velocity	± 35°; 0.03° - 30° / sec
Accuracy	1 mrad
Resolution	0.1 mrad
Parking Position	Yes
Programmable Search	Program multiple preset scene locations

Image Presentation	
Video output	NTSC or PAL composite video
Connector types	BNC (2) provides thermal and daylight videos simultaneously
Video Over IP	Optional embedded encoders provide simultaneous H.264, IR + TV digital videos / HD LR-TV option: Full HD 1080p digital video (H.264)

Power	
Input voltage	28 V ± 4V
Power consumption	<130 W (system start; no IR Camera) <180 W (cool down) <170 W (average)

Environmental	
Operating temperature range	-32°C to 55°C
Storage temperature range	-45°C to 70°C
Automatic Window defrost	Yes
EMC/EMD	CE tested (compliance with the following procedures): Emission: EN61000-6-4:2007 / Immunity: EN61000-6-2:2005 FCC 47 CFR part 15 Class B

Rain	Mil-Std-810F, 506.4 - procedure II
Humidity	Mil-Std-810F, 507.4
Sand/dust	Mil-Std-810F, 510.4 - procedure II
Ice/ freezing rain	Mil-Std-810F, 521.2 - procedure I
Shock	Mil-Std-810F, 516.5 - procedure I
Vibration	Mil-Std-810C, 514.2 - procedure VIII, Sinus Min. of 10 mm and 1.0 g, 1 - 5-1 Hz
Solar radiation	Mil-Std-810F, 505.4 - procedure I, cycle A1
IP rating	IP65

Physical Characteristics	
Weight	Configuration dependent; 66 kg max.

Interfaces	
Ethernet	Optional: command and control all functions and H.264 video
RS-485	Command and control all functions

Options Available	
Laser Range Finder (LRF)	Erbium glass or Nd:YAG+OPO system, eye safe / 80 m - 20 km
Geo Positioning (GPS)	GPS optionally available
Digital Magnetic Compass (DMC)	Optionally available
Automatic Video Tracker including Electronic stabilization	Optionally available

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