



THERMAL VISION
FOR FIRST RESPONDERS &
COMMERCIAL VESSELS



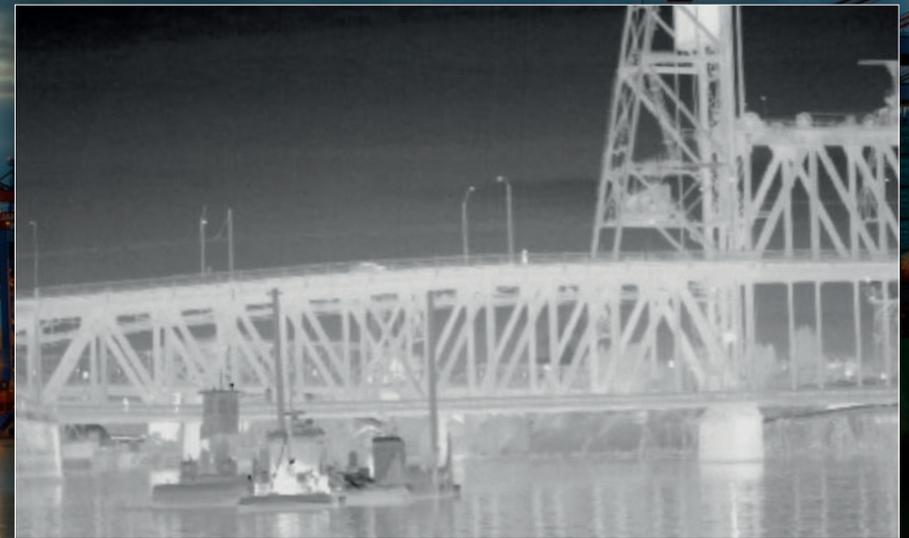
THE POWER OF THERMAL IMAGING

FLIR Maritime thermal imaging systems give you the power to see clearly in total darkness, haze, glare and smoke. FLIR thermal technology is used by thousands of military, first responder, and commercial professionals every day for navigation, collision avoidance, threat detection, surveillance, and search and rescue missions.

Thermal cameras sense heat, not light. All objects in our world emit thermal radiation at wavelengths beyond the capability of our eyes. Even ice cubes emit energy. Thermal cameras reveal subtle temperature differences in a video display that anyone can understand, with no training required.



Our eyes rely on light and color contrast to see and resolve objects. Other vessels and obstructions are hard to see in the dark.



Vessels, human activity, and stationary objects show up clearly in the in complete darkness, glare, smoke, and haze when viewed in thermal.

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From the smallest patrol boats to the largest ocean-going vessels, FLIR offers maritime camera solutions that are rugged, reliable, and simple to use.

NAVIGATION: OBSTACLE AVOIDANCE

Every object in the world emits or reflects thermal radiation (heat) at wavelengths the human eye can't perceive. It's this thermal radiation—rather than visible light—that FLIR cameras detect and display on screen. Different temperatures appear as contrasting shades, often displaying white as warm and black as cool. As a result, vessels, buoys, floating debris—even icebergs—become clearly identifiable against cooler surroundings.

In addition to the power of thermal vision, FLIR maritime cameras feature intelligent Marine Video Analytics (MVA) technology for recognizing and highlighting non-water objects like boats, buoys or floating debris.



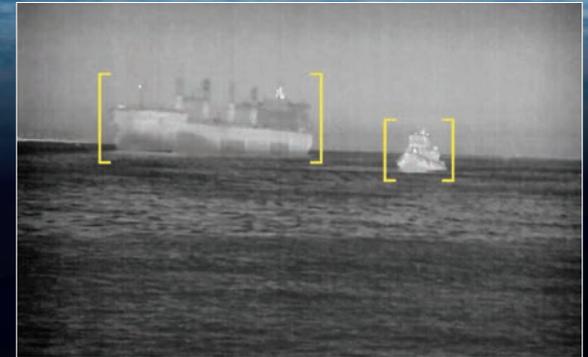
TRAFFIC

FLIR cameras allow you to see traffic in total darkness even if they are running without lights. This helps you to avoid collisions, identify suspect vessels, and see onboard activity.



MARKERS

Thermal helps you to see the shapes of buoys and navigation aids. Cameras with color Thermal Vision offer enhanced identification by bringing color characteristics into the live thermal image.



CLEARCRUISE™ OBJECT DETECTION

In addition to the power of thermal vision many FLIR maritime cameras feature ClearCruise™ Object Detection technology for recognizing and highlighting non-water objects like boats, buoys, or floating debris.

SURVEILLANCE SEARCH & RESCUE

Nighttime decision-making is a challenge for all first responders. A long-range, stabilized FLIR thermal camera system can help you observe suspicious activity or react quickly to emergency situations.



COVERT SURVEILLANCE

Airborne and land-based law enforcement agencies use thermal cameras as force multipliers. FLIR maritime thermal cameras offer the same covert advantage on the water.



ENFORCEMENT OPERATIONS

FLIR cameras give you situational information that other low light technologies can't capture. Onboard recording and live streaming capabilities let command centres remotely monitor suspicious activity and gather video evidence.

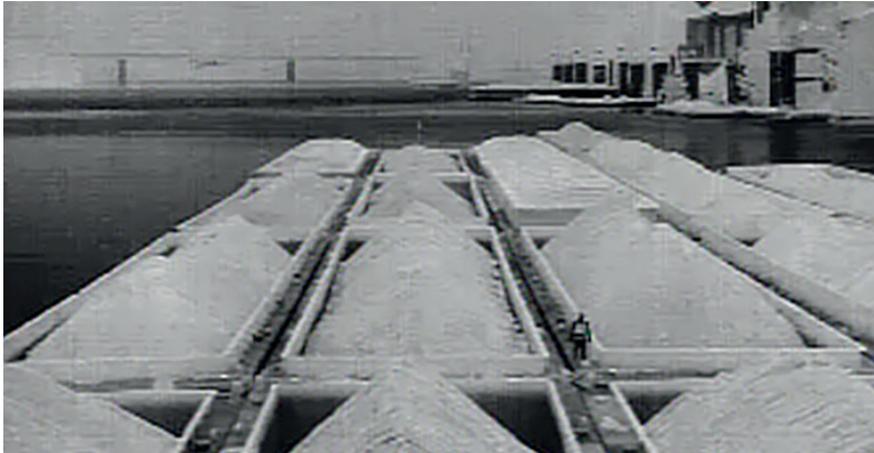


SEARCH & RESCUE, MAN OVERBOARD

FLIR thermal cameras are powerful tools for SAR and excel in the maritime environment. Cool, uniform scene dynamics make warm objects—such as a person—stand out in the scene.

SECURITY: SHORT-AND LONG-RANGE

Thermal cameras allow professional mariners and first responders to monitor the safety of their crews in total darkness, as well as evaluate security threats around them. It's virtually impossible to hide from a thermal imager.



THREAT DETECTION

Long-range thermal cameras give you more time to react by identifying suspicious or threatening behavior. Conduct surveillance from a safe standoff distance, then move in when the time is right.

OPERATIONS & ONBOARD SECURITY

FLIR cameras allow you to observe activity on deck, regardless of lighting conditions.

PATROL & PORT SECURITY

Thermal cameras allow you to covertly observe activity at long ranges. This is extremely useful for law enforcement and security applications. Network-enabled systems can also be managed remotely, allowing agents to view live video at remote stations or command centers.

SPECIAL THERMAL IMAGING APPLICATIONS

Because thermal imaging cameras display differences in temperature within a scene, they are powerful tools for evaluating environmental conditions, seeing through smoke, and even detecting icebergs.



OIL SPILL MANAGEMENT

Thermal cameras can reveal oil slicks on water. Water reflects more thermal energy than oil, so the cold night sky reflects off the water while oil reflects less and appears warmer.

FIREFIGHTING

Smoke blocks visible light, but thermal energy passes through. Thermal imaging allows you to see the location of a fire and any onboard activity in low-visibility smoke conditions.

ICEBERG AVOIDANCE

All objects give off varying amounts of thermal energy, even ice. By assigning color to objects below a specified temperature, FLIR cameras can help reveal icebergs.

ENHANCED VISIBILITY IN CHALLENGING ENVIRONMENTS

GLARE

Daytime solar glare and nighttime urban lighting pose challenges for response boat pilots, especially when navigating busy areas at high speeds. Thermal cameras are not affected by light, so the image from a thermal camera will be consistent regardless of glare conditions.



FOG

Thermal cameras will offer some level of improved visibility through fog. While environmental conditions will affect the visible distance and thermal image quality, cooled mid-wave thermal cameras deliver improved performance for imaging through fog.



VISIBLE THROUGH FOG



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LONG-WAVE



MID-WAVE

THERMAL VS. LOW-COST NIGHT VISION

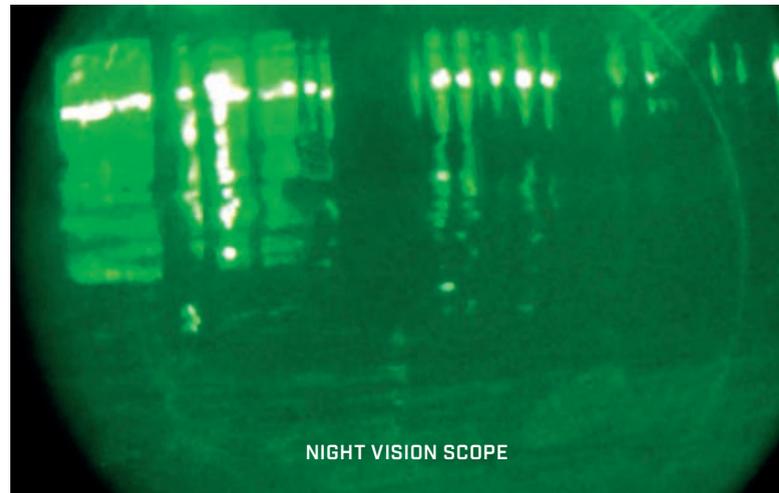
The maritime environment presents some of the most difficult imaging conditions possible. Conventional low-light or image intensified cameras (green night vision scopes) rely on small amounts of light to produce an image. In many cases, the maritime environment is cluttered with bright lights on the shoreline, which presents a challenging scene for image intensifiers.

Bright lights in the distance can cause a conventional night vision scope to bloom, making it hard to see targets of interest. Conversely, the maritime environment is complimentary to thermal imaging, since you are looking for a warm target against a cool, uniform scene.

Humans and engines can't hide their heat. Because of this, FLIR thermal cameras outperform low-cost night vision systems for long-range detection and search and rescue.

CAN YOU SPOT THE KAYAKER?

1. Your eyes can't adjust fast enough to deal with a dark foreground and bright lights on the horizon.
2. Like the fog set, we need to scale these appropriately so the target of interest, and other major landmarks in the scenes, are in the same positions. Otherwise it's impossible to compare them and they lose credibility. Night vision scopes struggle when even the smallest amounts of bright light enter the scene. Notice how the distant lights bloom, destroying the contrast in the foreground.
3. FLIR thermal cameras do not rely on visible light. The kayaker's body heat gives away his position.



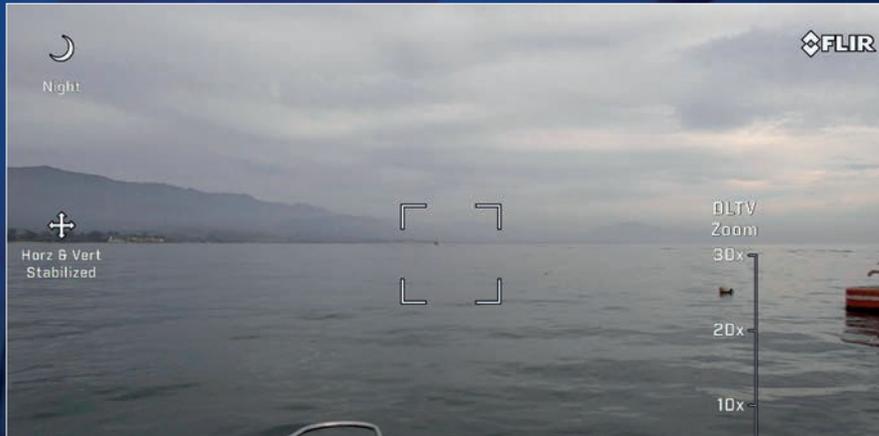
DAYLIGHT AND LOW-LIGHT VISIBLE CAMERAS FOR SURVEILLANCE AND THREAT DETECTION APPLICATIONS



FLIR stabilized maritime systems configured with high-performance daylight cameras provide incredible standoff range that will extend your threat detection, security, and surveillance abilities with up to 360x combined optical and digital zoom.

These powerful HD visible cameras can outperform stabilized binoculars, and video can be recorded for evidentiary purposes. With 0.35 lux sensitivity these HD visible cameras greatly enhance your ability to positively identify vessels or suspects in low light conditions.





WIDE-ANGLE VIEW FROM M400/M500 HD DAYLIGHT CAMERA



ZOOM VIEW FROM M400/M500 HD DAYLIGHT CAMERA



COLOR THERMAL VISION BLENDS THE VISIBLE AND THERMAL IMAGE



HIGH-PERFORMANCE M300/M400/M500 LOWLIGHT MODE

FEATURES, INTEGRATIONS, AND OPERATIONAL REQUIREMENTS TO CONSIDER

STABILIZATION

FLIR offers both fixed and stabilized pan/tilt camera systems. Stabilization compensates for vessel pitch movement and is an important requirement in most commercial and first responder applications. There are some applications, however, where a fixed, short-range camera pointed at an operations area of a deck won't require stabilization.

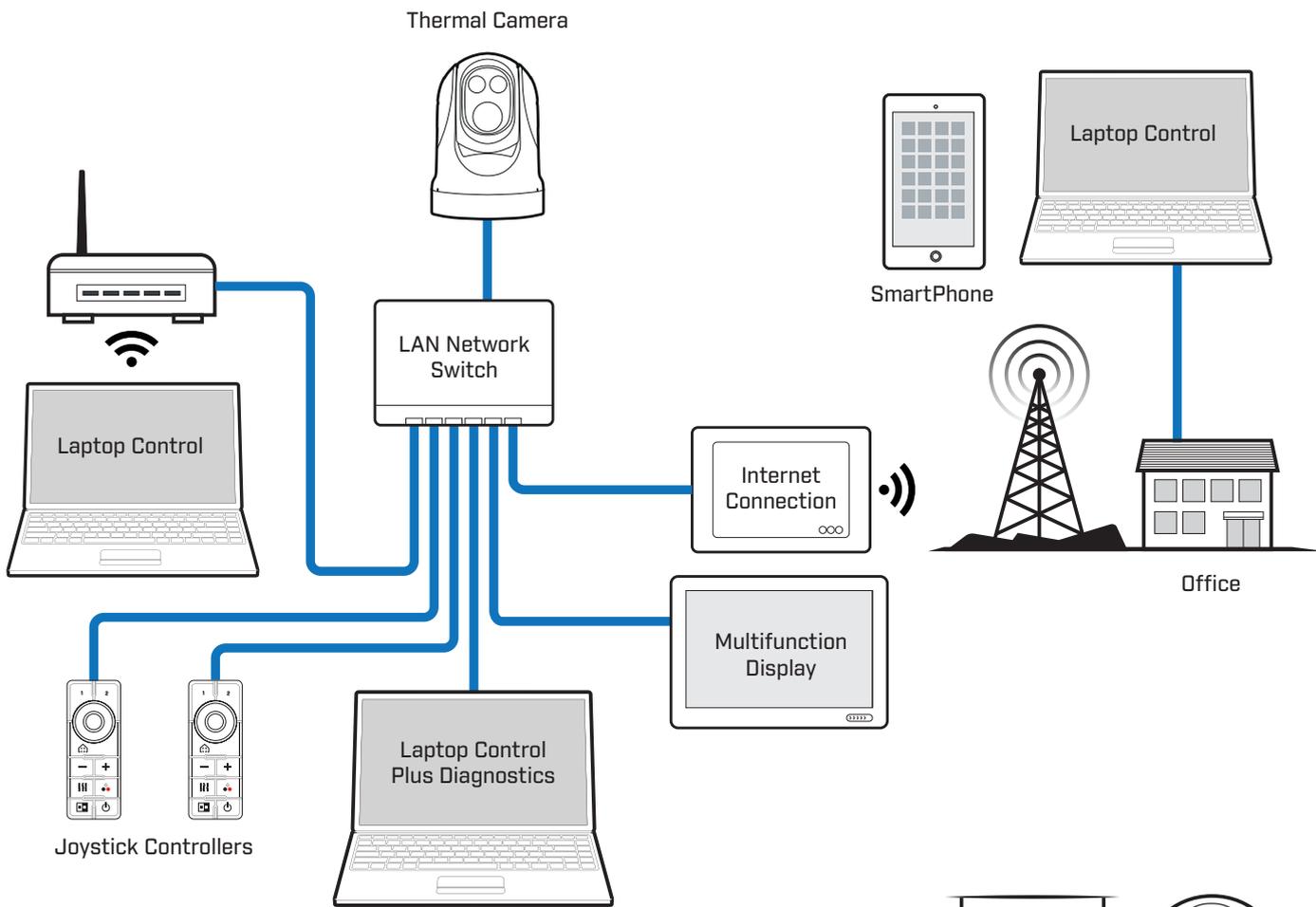
M300, M400, and M500 systems also offer horizontal pan stabilization which allows the camera to automatically keep a scene in view while the boat maneuvers freely.

REMOTE CONTROL AND MFD INTEGRATION

FLIR maritime thermal cameras can be controlled through a joystick control unit (JCU), along with a dedicated marine monitor display. Additional joystick controls units and monitors can be used for viewing at remote locations. FLIR maritime cameras also integrate with Furuno, Garmin, Simrad, and Raymarine multifunction displays (MFDs).

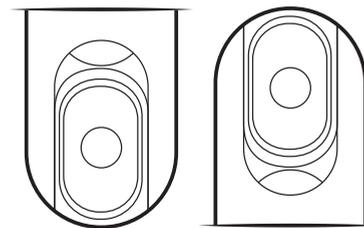


Integration with popular multifunction displays from Raymarine, Simrad, Garmin, and Furuno



NETWORKING AND VIDEO CONTROL

Most older multifunction displays accept analog video, and the new systems are migrating towards IP video with network-enabled control. FLIR offers future-proof solutions to ensure your system will support your marine electronics suite for years to come.



Ball up or ball down installation options



Dedicated joystick controls are available

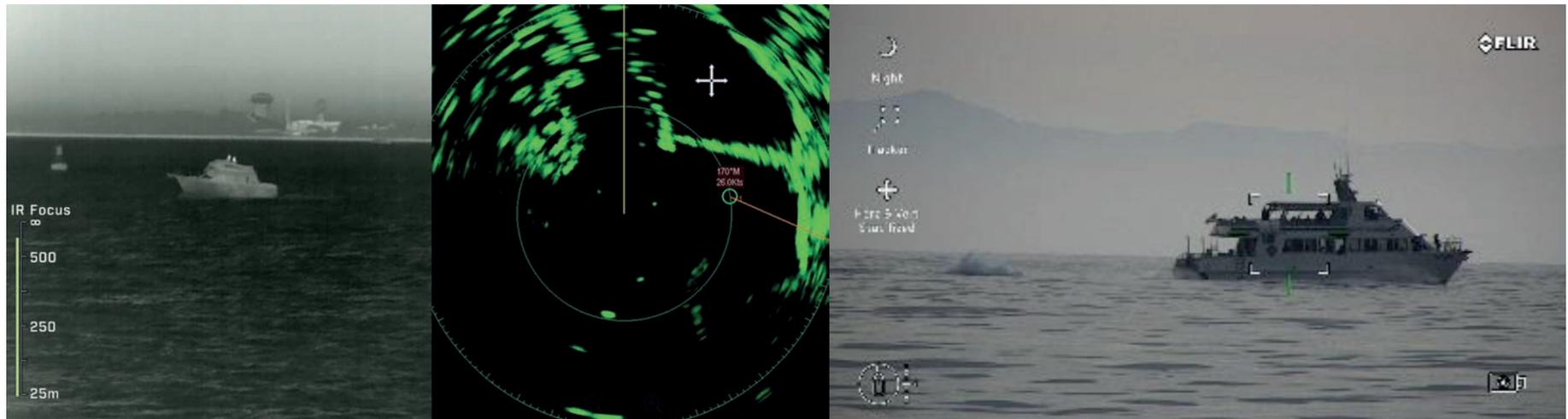
ADVANCED FEATURES FOR COMMERCIAL MARINERS AND FIRST RESPONDERS

RADAR INTEGRATION

Integrating a FLIR maritime camera to a compatible radar system can significantly reduce operator workload. Depending on the level of system integration, captains can select an AIS or MARPA target of interest on a touchscreen MFD and slew the FLIR camera to the target's location. This process, called slew-to-cue, enables the cameras to automatically track a target. Slew-to-cue can greatly benefit man overboard efforts, and help captains locate markers or targets in the distance. Once only available for sophisticated military systems, slew-to-cue target tracking can work seamlessly between visible and thermal cameras for systems with dual payloads. The capabilities and level of slew-to-cue integration vary by marine electronics manufacturer.

VIDEO AUTO TRACKING

FLIR M400XR and M500 models are equipped with a video tracker feature. Video tracking allows the camera to follow a target of interest automatically without continuous input from the operator. The camera will automatically track the target if the target remains in an unobstructed line of sight. The video tracker works seamlessly between the visible and thermal cameras, allowing you to switch between systems and adjust zoom settings.



Enable your camera to track radar targets automatically

Autotracking is useful for reducing workload, as it allows operators to concentrate on other duties while the camera stays on target



INTERNET NETWORK REMOTE CONTROL

The advanced M400 and M500 can be accessed and controlled remotely, enabling remote security monitoring, interagency command and control, remote surveillance and video gathering, and system diagnostics.



Network-enabled systems allow you to remotely control the FLIR system from a command center.

Command and control, information sharing, remote video recording, extended surveillance, and agency interoperability all benefit from a network connected FLIR system.

FLIR MARITIME THERMAL CAMERAS AND MISSION PROFILES

FLIR offers a wide range of thermal camera systems for many different missions and tasks.

When choosing a thermal camera for your application, there are three questions to ask.

1. How far do you need to see?
2. Do you need a visible camera for daytime operations?
3. Do you need a stabilized system?



CLOSE-RANGE



MD324 & MD625

Fixed

CLOSE-RANGE



M232

Compact Pan/Tilt
MFD Slew-to-Cue

CLOSE-RANGE



M332

Stabilized Pan/Tilt
Single or Dual Payload
MFD Slew-to-Cue

MEDIUM-RANGE



M364

Stabilized Pan/Tilt
Single or Dual Payload
MFD Slew-to-Cue

MEDIUM-TO LONG-RANGE



M364C LR

Stabilized Pan/Tilt
Dual Payload
MFD Slew-to-Cue

LONG-RANGE



M400/XR

Stabilized Pan/Tilt
Multi-sensor
4x Optical Thermal Zoom
HD Visible with 360x Zoom
Radar Slaving
Video Tracking (XR)
Firefighting Mode (XR)

MAXIMUM-RANGE



M500

Stabilized Pan/Tilt
Multi-sensor
14x Optical Thermal Zoom
HD Visible with 360x Zoom
Radar Slaving
Video Tracking
Mid-Wave Sensor for Fog Penetration

RANGE AND RESOLUTION

UNDERSTANDING RANGE PERFORMANCE AND OPERATIONAL REQUIREMENTS

One of the first questions to answer while comparing camera systems is how far you will need to see to identify vessels, objects, or activity of interest. Low-cost FLIR cameras are fixed field of view systems optimized for navigation and close-range operations. High-performance systems offer optical zoom lenses that can detect a small 30' vessel at beyond 5 nm.



800'

M332

320 X 240 RESOLUTION AT 800'
IN 4X DIGITAL ZOOM



800'

M364

640 X 480 RESOLUTION AT 800'
IN 4X DIGITAL ZOOM

Thermal camera sensors are low resolution compared to the megapixel visible cameras in smartphones. The commercially available systems commonly have between 320 x 240 or 640 x 480 thermal resolution. While this seems low, a 640 x 480 FLIR camera with a powerful optical zoom lens can satisfy most commercial and first responder missions.



	800'
	M364C LR
	640 X 480 RESOLUTION AT 800' IN 4X DIGITAL ZOOM



	0.15_{NM}
	M400
	AT A DISTANCE OF 0.15NM



	0.25_{NM}
	M500
	AT A DISTANCE OF 0.25NM

For detailed product specifications, see pages 35 to 41



DISTANCE, RECOGNITION, AND CLASSIFICATION

The distance that you will be able to detect and recognize a target depends on various camera and atmospheric factors. Most manufacturers use a mathematical model to establish range performance claims. As the leaders in maritime imaging, FLIR provides actual test results and validates range performance in real life conditions. Video of these results are available online at flir.com/marine.

There are three industry-standard measurements used to present the range performance of a thermal imaging system: detection, recognition, and identification. Detecting a target simply means you can see a hot spot on the monitor, even if it's just one pixel. Recognizing a target means you can verify it as another vessel, as opposed to an island. Recognition can be possible with as few as five or six pixels.

Since the identity of a human cannot be reliably determined with thermal cameras, FLIR uses "classification of human activity," rather than "identification."

Classifying human activity is a more meaningful benchmark, given that in most first responder missions, officers are primarily interested in confirming that people are onboard, determining how many there are, and understanding what they are doing.

The graphics on the following pages illustrate the ranges at which the following FLIR cameras can realistically provide detection, recognition, and classification of a 30ft. vessel under ideal and poor conditions.



Detection means you can see something on the monitor. It might only represent one or two pixels on the camera, but it shows up just the same.



Recognizing a target means you can verify it as another vessel, as opposed to an island. FLIR uses a 30' outboard boat as a benchmark.



Rather than recognition, FLIR uses "classification of human activity." In most maritime first responder and commercial applications, we are primarily concerned with gaining insight into the presence and actions of humans onboard.



SYSTEM FEATURES AND RANGE PERFORMANCE

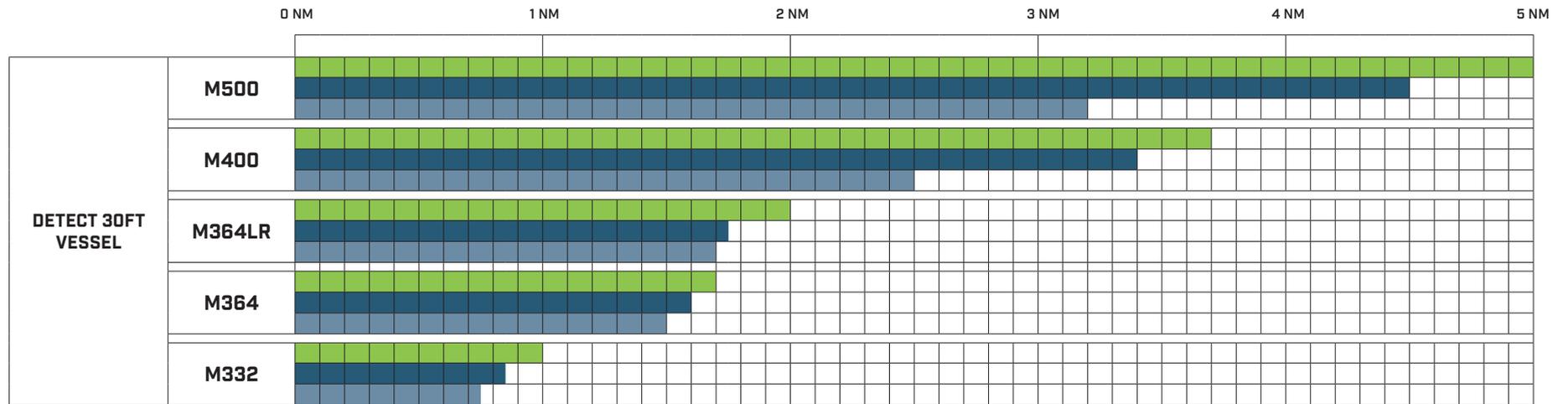
Thermal Night Vision: Day or night operation without any ambient light.
Digital Thermal Zoom: Thermal image is magnified by pixel stretching, making small or distant targets appear larger for easier viewing.
Analog Video Output: Connect the camera to monitors, televisions, and marine displays with standard composite analog video.
Multifunction Display Integration: Controllable from major brands of marine multifunction displays like Raymarine, Garmin, Furuno and Simrad.
Tilt Control: Adjust the camera's viewing angle +/- 90° to compensate for vessel running angle.
Video over IP Output: Streams network video over standard Ethernet networks to computers and compatible marine multifunction displays.
MFD Slew-to-Queue: The thermal camera can respond to queues from a networked marine multifunction display. Queues include dangerous ARPA or AIS contact alarms, the GPS position of a man overboard alarm, or locking onto a point designated from the electronic chart.
Pan/Tilt Control: Slew the camera +/- 360° horizontally and +/-90° vertically for horizon-to-horizon viewing of targets.
Color Lowlight Video Camera: Augments the thermal imager with color and lowlight video for positive target verification and enhanced surveillance. 36x optical zoom.
HD Color Lowlight Video Camera: High definition visible camera with optical zoom for positive target verification and enhanced surveillance.
Optical Thermal Zoom: Advanced lens system magnifies small objects or distant targets for easy identification. Targets remain in clear, crisp focus right up to maximum optical magnification.
Video Tracker: Lock the camera on a suspect, victim, or incident scene. The camera's pan/tilt system will keep the target in-frame, automatically.
Radar Integration: Send coordinates from your radar system to the camera's pan/tilt drive to keep selected radar targets in view. Follow the radar cursor, or see GPS waypoints.
Cooled Thermal Technology: Cryogenically cooled mid-wave thermal Imager brings double the sensitivity for extreme long-range capability, and more detailed imaging.
Vessel Detection: What is the typical detection range for a small 30ft. vessel?

For detailed product specifications, see pages 35 to 41

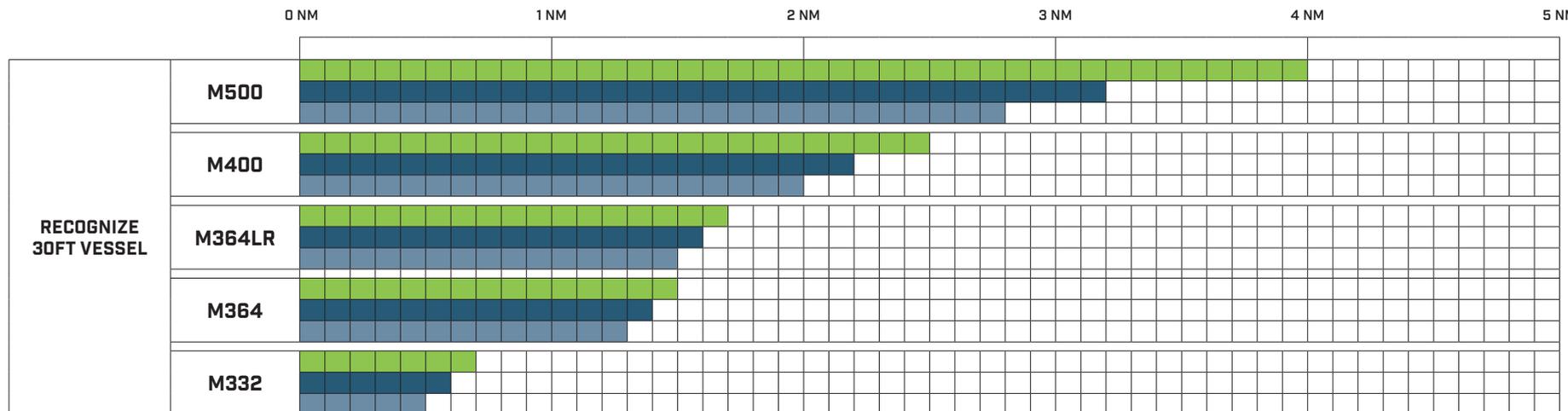


THERMAL CAMERA RANGE PERFORMANCE

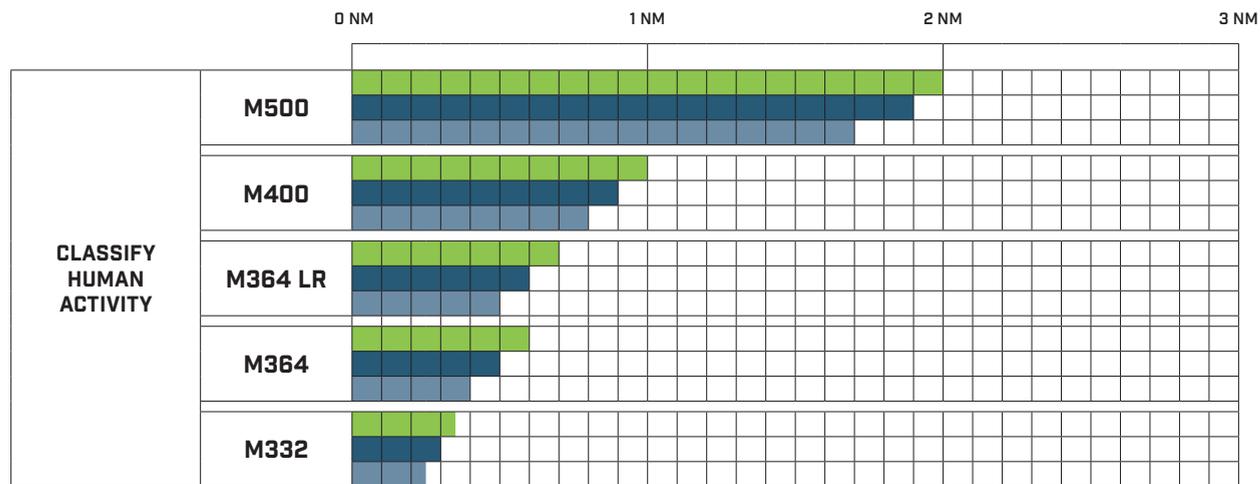
DETECT 30FT VESSEL



RECOGNIZE 30FT VESSEL



CLASSIFY HUMAN ACTIVITY



- GOOD CONDITIONS
- TYPICAL CONDITIONS
- POOR CONDITIONS



M232 COMPACT PAN/TILT THERMAL FOR CLOSE-RANGE APPLICATIONS

The M232 is the most affordable FLIR pan/tilt marine thermal imaging system. The 320 × 240 resolution thermal sensor, combined with a 24-degree field of view lens is well suited for navigation and close-range detection of small vessels, markers, or obstructions. There are several options for controlling the camera, including select maritime electronic manufacturers, joystick control units, connecting to existing FLIR JCU's, or via web application on supported devices. The system is future-ready with IP connectivity and control but can be adapted to support existing monitors with an analog video converter and a joystick control unit kit.

When the system is controlled using the Raymarine Axiom MFD, FLIR ClearCruise™ intelligent marine video analytics are enabled. ClearCruise technology automatically sends audible and visual alerts when objects appear on-screen. This is a powerful navigational aid for busy pilots and is only available on FLIR M232 models connected to a Raymarine Axiom display.

M232 FEATURES

- Pan/Tilt (M232)
- 320 × 240 thermal resolution
- Digital zoom
- Small, lightweight design
- IP video or optional analog connectivity
- Intelligent ClearCruise™ analytics with Axiom display



ClearCruise™ analytics provide visible and audible alerts when connected to an Axiom display

MD-SERIES STATIONARY THERMAL CAMERAS FOR NAVIGATION AND ONBOARD SURVEILLANCE



The MD-Series is an affordable, compact, fixed thermal-only night vision system that aids in navigation, collision avoidance, and onboard surveillance at night. It is simple to mount and integrate with existing electronics. Standard analog video can be easily displayed on almost any monitor on the vessel.

The MD is available in 640 × 480 or 320 × 240 resolution and can be mounted ball up or ball down. You can change color palettes, change the digital zoom, or adjust contrast settings from supported network-enabled multifunction displays, a PC, or the FLIR mobile app.

FEATURES

- 320 × 240 or 640 × 480 resolution
- Digital zoom
- Small, lightweight design
- Analog video integrates into most multifunction displays
- Supports ball up or down mounting
- Multiple control options



M300 SERIES CLOSE-AND MEDIUM-RANGE STABILIZED MARINE CAMERA SYSTEMS

Built on decades of experience building mission-proven thermal solutions, the FLIR M300 Series marine cameras are gyro-stabilized with full pan/tilt control. They are well suited for most close-to medium-range commercial and first responder missions.

The standard resolution M332 provides elite performance in close-range navigation and mission profiles, while the M364, M364C, and M364C LR are better suited for medium- to long-range applications. M300 Series is designed to integrate seamlessly with onboard navigation display and ONVIF compatible security systems.

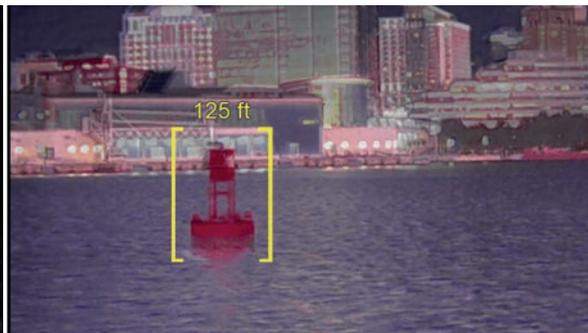
All M300 Series cameras are equipped with an onboard Attitude Heading Reference System (AHRS), offering gyro-stabilized imagery, for when seas are rough.



320 X 240 RESOLUTION AT 800' IN 4X DIGITAL ZOOM



640 X 480 RESOLUTION AT 800' IN 4X DIGITAL ZOOM



COLOR THERMAL VISION PROVIDES EASY IDENTIFICATION OF ILLUMINATED NAVIGATION AIDS



LOW LIGHT VISIBLE CAMERA PROVIDES 36X OPTICAL AND 12X DIGITAL ZOOM DELIVERING EXCELLENT SURVEILLANCE STANDOFF AND THREAT DETECTION, AND VISIBLE FOOTAGE CAN BE USEFUL AS EVIDENCE FOR LAW ENFORCEMENT OR INSURANCE PURPOSES

M300 Series cameras are available single or dual payload configurations. Dual payload models feature a 640 thermal camera core plus a high-definition lowlight visible camera with 30x optical zoom. Single payload thermal M300 series cameras are available with a 320 or 640 resolution thermal camera or a single high-definition lowlight visible camera with 30x optical zoom.

FEATURES

- AHRS enhanced gyro-stabilization for steady images in rough seas
- Patented FLIR Color Thermal Vision blends thermal and visible imagery for enhanced awareness
- 360° pan and +/- 90° tilt control
- Rugged sealed enclosures with IP66 and Mil-Std 810-E certification
- Automatic window heaters for clearing ice
- Video over IP and Ethernet control for networking with MFDs and security systems
- Analog video and HD-SDI broadcast-quality video output



	M300C	M332	M364	M364C	M364C LR
Payload	Single			Dual	
Visible payload	High Definition >1080/30p	–	–	High Definition >1080/30p	
Thermal payload	–	320 x 256	640 x 512		
Field of View	Variable	24 deg	24 deg	24 deg	18 deg



M400/M400XR LONG-RANGE HIGH-PERFORMANCE MULTI- SENSOR SYSTEM

The M400 is a powerful long-range, stabilized multi-sensor maritime imaging system. With a 640 × 480 sensor and optical zoom lens the M400 can detect a 30' outboard vessel at more than 3.5 nm in total darkness, and is packed with features for the most demanding first responder and commercial applications.

The M400 offers a continuous 4x optical and 4x digital zoom, enabling the system to detect vessels at nearly twice the range of the M364C LR. Active gyro-stabilization provides stable imagery and radar tracking can keep important targets in view at all times, reducing operator workload. The HD color and low light visible camera with 30x optical and 12x digital zoom provides maximum standoff for long-range surveillance operations. The M400 also features a powerful LED spotlight for target illumination and crew coordination.





FIREFIGHTING MODE IDENTIFIES HOT SPOTS THROUGH DENSE SMOKE



4X OPTICAL ZOOM AND GYRO-STABILIZATION ENABLE LONG-RANGE VIEWING OF ONBOARD ACTIVITIES



HD color and low-light camera with 30x optical and 12x E-Zoom, respectively

When integrated with popular radar systems, the M400 supports camera slew-to-cue and radar target tracking. Three video streams allow you to integrate with legacy analog monitors, network video-enabled systems, or HD-SDI interfaces. The networking connection also supports remote command center sharing, recording, and control.

The M400XR model includes video target tracking, critical for extended surveillance operations. Also included in the XR option is the FLIR-exclusive firefighting mode, which draws on extensive experience in designing thermal systems for firefighting. FLIR cameras see through smoke, and the M400XR includes high temperature calibration, on-screen temperature measurements, and a radiometric isotherm that displays the hottest area of the image in red.

FEATURES

- Long-range imaging performance
- High intensity LED spotlight illuminates targets of interest
- HD color and low light camera with 30x optical and 12x digital zoom, respectively
- Gyro-stabilization keeps image steady in rough water
- Rugged, proven, waterproof FLIR gimbal with automatic window heaters for ice management
- 360° pan and $\pm 90^\circ$ tilt control for uninterrupted and continuous tracking
- Radar integration enables camera slew-to-cue and tracking capabilities
- Network-enabled for command, control, and information sharing
- Optional video tracker holds the camera on objects in the scene and reduces operator fatigue (XR Option)
- Optional high temperature mode includes special high-temperature calibration, on-screen temperature measurement, and radiometric isotherms optimized for firefighting missions (XR Option)



Integrated high intensity spotlight aids in target identification and crew coordination.



M500 MAXIMUM-PERFORMANCE MULTI-SENSOR CAMERA

The M500 is the most powerful commercially-available FLIR maritime camera. M500 uses the same high-sensitivity cooled mid-wave infrared sensor used in high-performance FLIR military systems and is twice as sensitive as the rest of the commercial lineup. When compared to the M400, the M500 mid-wave detector provides 2x the image sensitivity (quality) of other long-wave systems and delivers 35% better range performance.

Cooled mid-wave sensors perform better through fog and other atmospheric obscurants than long-wave systems. The M500 is well suited to agencies or organizations that need the maximum range performance and the best image quality available.

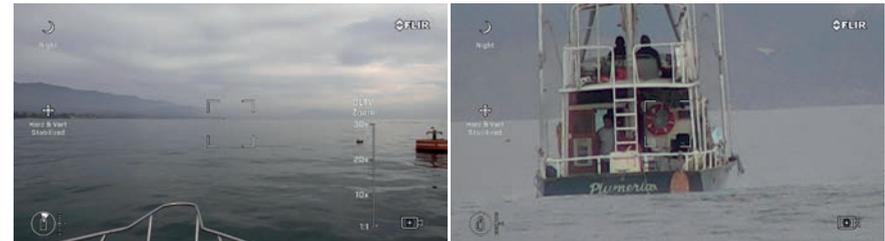
FLIR



14X THERMAL OPTICAL ZOOM AND GYRO-STABILIZATION FOR MAXIMUM RANGE OBSERVATION



VIDEO TRACKING AUTOMATICALLY FOLLOWS A SELECTED TARGET WITH THE THERMAL OR VISIBLE CAMERAS



HD color and low light camera with 30x optical and 12x E-Zoom, respectively

FEATURES

- High intensity LED spotlight can illuminate targets of interest
- HD color and low light camera offers 30x optical and 12x digital zoom, respectively, and delivers amazing standoff range
- Gyro-stabilization provides steady imagery in rough seas
- High-sensitivity mid-wave sensor delivers the maximum range performance and image quality available in a commercial system
- Rugged, proven, waterproof FLIR gimbal features automatic window heaters for ice management
- 360° pan and $\pm 90^\circ$ tilt control provides uninterrupted and continuous tracking
- Video tracker holds the camera on objects in the scene and reduces operator fatigue
- Radar integration enables camera slew-to-cue and tracking capabilities
- Network enabled for command and control and information sharing



High intensity LED spotlight



FLIR SCION PTM

PROFESSIONAL HANDHELD THERMAL MONOCULAR

The Scion PTM is an IP67-rated thermal monocular designed for the rigors of marine patrol. High-performance handheld thermal imaging provides superior tactical awareness while conducting surveillance, searching for evidence, or responding to SAR missions. Capable of geotagged video recording and live video transmission, the Scion PTM can instantly stream encrypted thermal footage to the command center via wireless network.

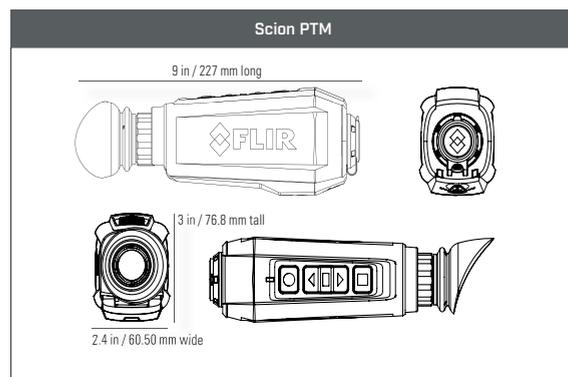
With a fast, 60 Hz refresh rate and wide-array of lens options, the Scion PTM offers portable, on-demand surveillance to first responders.

FEATURES

- 640 × 512 thermal resolution
- IP67-rated
- Multiple lens options
- 4.5-hours of continuous operation
- Onboard video recording
- Wireless video streaming
- 2x, 4x, 8x digital zoom
- 1/4-20-tripod mount



HANDHELD SPECIFICATIONS

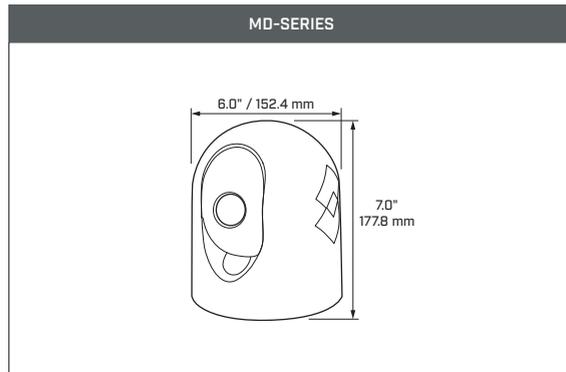


WHAT'S IN THE BOX:

- Scion Thermal Monocular
- USB charging cable with universal AC adapter
- Custom video-out cable
- Wrist strap
- Molle bag
- Quick start guide

GENERAL	PTM166	PTM336	PTM366
Core Technology	BOSON 12 μ m VOx Microbolometer		
Detector Resolution	640 x 512	320 x 256	640 x 512
Refresh Rate	60 Hz		
Lens System	14.0 mm	25 mm	
Field of View (H x W)	32° x 24°	9° x 6.5°	18° x 13°
Optical Magnification	.7x	2.6x	1.3x
Digital Zoom	1X 2X 4X 8X	1X 2X 4X	1X 2X 4X 8X
Video Recording	Yes		
Image Capturing	Yes		
Internal Memory	2 GB Internal Storage / Optional microSD™ Card (up to 128 GB)		
Focus	∞	Manual	
Eye Relief	16 mm		
Display	Quad-VGA (1280x960) High definition display		
Display Focus	Manual		
USER INTERFACE			
Temperature Imaging Modes (Thermal Palettes)	White Hot; Black Hot; Iron Bow; Rainbow; Graded Fire; Lava		
Viewing Modes	Scouting, Picture-in-Picture, Lock Span Mode		
Picture While Recording (PWR)	Yes		
Date/Time Stamp	Yes		
Auto Power OFF	Yes		
Magnetic Compass	Yes		
INTERFACING			
USB Type	USB-C; Power In; Video Out; Video and Image File Transfer		
POWER			
Battery Type	Up to 6x CR123A 3V Lithium Battery		
Battery Life	Up to 4.5 hours at 20° C		
COMMUNICATIONS			
NFC (Near Field Communications)	Yes		
Bluetooth™	Yes BLE 4.1+		
Wi-Fi	Video Streaming		
GPS	No		Yes
FLIR TruWITNESS® Integration	Yes		
PHYSICAL			
Weight	Without Batteries: 452 g; With Batteries 572 g		
Size	227 x 76.8 x 60.5 mm (9 x 3 x 2.4 in)	239 x 76.8 x 60.5 mm (9.4 x 3 x 2.4 in)	
Color (Housing)	Black		
Mounting	¼-20 Tripod Mount		
Country of Origin	USA		

MD-SERIES SPECIFICATIONS



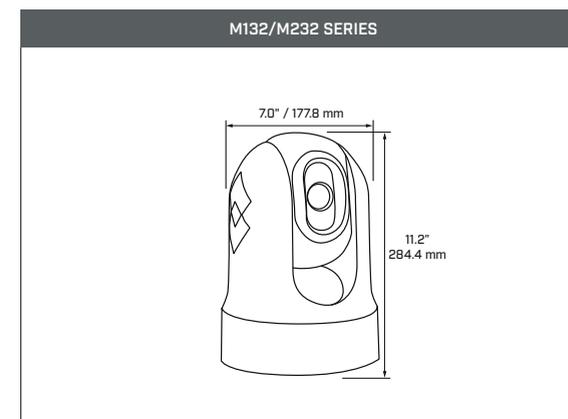
WHAT'S IN THE BOX:

EVERY MD-SERIES THERMAL CAMERA SYSTEM INCLUDES:

- Camera unit
- Camera base O-ring
- RJ-45 Ethernet cable, double shielded, low smoke zero halogen (LSZH) rated, 25 feet (7.7 meters)
- Coaxial video output cable, 25 feet (7.7 meters)
- 12V DC Power Over Ethernet (PoE) injector
- RJ45 weatherproof coupler
- Female-to-female F-type video connectors
- Stainless steel mounting hardware kit

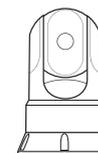
	MD-324	MD-625		
MAIN THERMAL CAMERA				
Field of View	24° × 18° (NTSC)	25° × 20° (NTSC)		
Video Refresh Rate	<9 Hz or 30 Hz (NTSC and PAL)	<9 Hz or 30 Hz (NTSC and PAL)		
Focal Length	19 mm	25 mm		
Focus	Fixed 12ft (3.6m) to infinity	Fixed 12ft (3.6m) to infinity		
Optical Zoom	N/A	N/A		
Digital Zoom	2x	2x, 4x		
Detector Type	320 × 240 VOx Microbolometer	640 × 480 VOx Microbolometer		
SYSTEM SPECIFICATIONS				
Gyro Stabilized	No	No		
Video Tracking	No	No		
Firefighter Mode	No	No		
Pan/Tilt Adjustment Range	Pan: ±30° per key, Tilt: +34°, -27° (Locked in at Installation)	Pan: ±30° per key, Tilt: +34°, -27° (Locked in at Installation)		
Analog Video Output	NTSC or PAL, 30 Hz or <9 Hz	NTSC or PAL, 30 Hz or <9 Hz		
Analog Video Connector Types	F-type BNC with BNC-to-RCA adapter included for video out	F-type BNC with BNC-to-RCA adapter included for video out		
Network Video Output	No	No		
HD-SDI Lossless Video Output	No	No		
Power Requirements	PoE injector required per IEEE 802.3af, 12-24 V DC	PoE injector required per IEEE 802.3af, 12-24 V DC		
Power Consumption	4.8 W nominal; 12.5 W max	4.8 W nominal; 12.5 W max		
ENVIRONMENTAL				
Operating Temperature Range	-13°F to +131°F (-25°C to +55°C)	-13°F to +131°F (-25°C to +55°C)		
Storage Temperature Range	-40°F to +185°F (-40°C to +85°C)	-40°F to +185°F (-40°C to +85°C)		
Automatic Window Defrost	Standard at Power-Up	Standard at Power-Up		
Sand/Dust Ingress	Mil-Std-810E	Mil-Std-810E		
Water Ingress	IPX 6 (heavy seas, powerful jets of water)	IPX 6 (heavy seas, powerful jets of water)		
Shock	15 g vertical, 9 g horizontal	15 g vertical, 9 g horizontal		
Vibration	IEC 60945; MIL-STD-810E	IEC 60945; MIL-STD-810E		
Lightning Protection	Standard	Standard		
Salt Mist	IEC60945	IEC60945		
Wind	100 knot (115.2 mph)	100 knot (115.2 mph)		
EMI	IEC 60945	IEC 60945		
PHYSICAL				
Weight	~ 3 lbs (1.36 kg)	~ 3 lbs (1.36 kg)		
Size	6" (152.4 mm) dia. × 7" (177.8 mm) ht.	6" (152.4 mm) dia. × 7" (177.8 mm) ht.		
RANGE PERFORMANCE				
Clear Weather Range Performance	metres	nm	metres	nm
Detect a 30-foot vessel	1850.0	1.0	3150.0	1.7
NATO Target 2.3m x 2.3m @50%	1285.0	0.7	1691.0	0.9
Detect Human Sized Target	559.0	0.3	735.0	0.4

M232 SPECIFICATIONS



WHAT'S IN THE BOX: EVERY M232 THERMAL CAMERA INCLUDES:

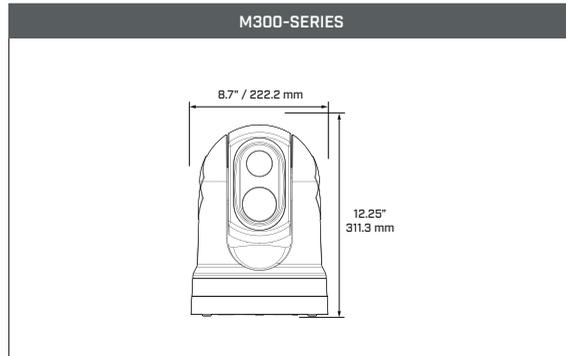
- Camera unit
- Top down riser kit
- Thermal camera base-seal
- Right-angled RayNet to RayNet cable, 32 feet (10 meters)
- RayNet to RJ45 adapter cable, 4-inches (100mm)
- Right-angled 3-pin power cable, 32 feet (10 meters)
- Stainless steel mounting hardware kit



Thermal camera shown with
optional riser

M232		
MAIN THERMAL CAMERA		
Field of View	24° × 18°	
Video Refresh Rate	9 Hz	
Focal Length	19mm	
Focus	Fixed 12ft (3.6m) to infinity	
Optical Zoom	N/A	
Digital Zoom	4x Continuous	
Detector Type	320 × 240 VOx Microbolometer	
SYSTEM SPECIFICATIONS		
Gyro Stabilized	No	
ClearCruise Analytics	Yes, with Raymarine Axiom	
Video Tracking	No	
Firefighter Mode	No	
Pan/Tilt Adjustment Range	Pan: 360° (continuous), Tilt: +110°, -90°	
Analogue Video Output	No	
Analogue Video Connector Types	N/A	
Network Video Output	Single H.264 Network Video Stream	
HD-SDI Lossless Video Output	No	
Power Requirements	12 or 24 VDC	
Power Consumption	15 W (typical) 18 W (max)	
ENVIRONMENTAL		
Operating Temperature Range	-13°F to +131°F (-25°C to +55°C)	
Storage Temperature Range	-30°F to +158°F (-30°C to +70°C)	
Automatic Window Defrost	Standard at Power-Up	
Sand/Dust Ingress	Mil-Std-810E	
Water Ingress	IPX 6 (heavy seas, powerful jets of water)	
Shock	15 g vertical, 9 g horizontal	
Vibration	IEC 60945; MIL-STD-810E	
Lightning Protection	Standard	
Salt Mist	IEC60945	
Wind	100 knot (115.2 mph)	
EMI	IEC 60945	
PHYSICAL		
Weight	6.0 lb (2.7 kg) w/o top-down riser 6.6 lb (3.0 kg) w/ top-down riser	
Size	6.34" (dia. @ base) x 9.03" (ht.) 161.1 (dia.) x 229.3 (ht.) mm	
RANGE PERFORMANCE		
Clear Weather Range Performance	metres	nm
Detect a 30-foot vessel	1850	1.0
NATO Target 2.3m x 2.3m @50%	1285	0.7
Detect Human Sized Target	559	0.3

M300 SERIES SPECIFICATIONS



WHAT'S IN THE BOX:

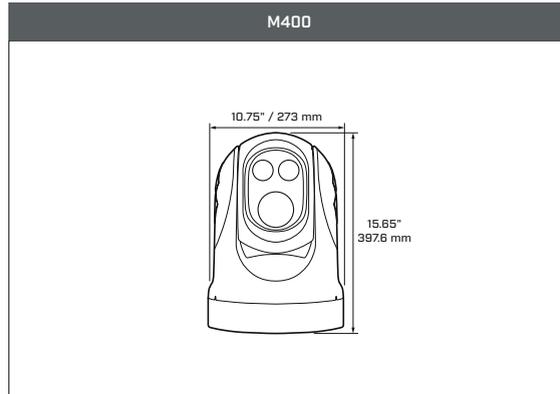
EVERY M300 CAMERA SYSTEM INCLUDES:

- Camera unit
- Camera base-seal
- Camera gasket
- RayNet-to-RJ45 adaptor cable 120 mm (4.72 in.)
- Right-angled RayNet-to-RayNet cable 3 m (9.8 ft.)
- Right-angled BNC-to-BNC cable 3 m (9.8 ft.)
- Right-angled 3-pin power cable 3 m (9.8 ft.)
- Mounting riser
- 3 x camera fixings: nuts, dome nuts, spring and flat washers, threaded studs
- 2 x self-adhesive decals (for ball-down mounting only)
- Documentation pack

	M300C	M332	
MAIN THERMAL CAMERA			
Video Refresh Rate	N/A	30 Hz or <9 Hz	
Field of View	N/A	24 ° x 18 °	
Focal Length	N/A	9.1mm	
Focus	N/A	Fixed 12 ft (3m) to infinity	
Optical Zoom	N/A	N/A	
E-Zoom	N/A	4x Continuous	
Image Processing	N/A	FLIR Proprietary Digital Detail Enhancement	
Detector Type	N/A	320 x 256 VOx Microbolometer	
MAIN VISIBLE CAMERA			
Detector Type	1/2.8" Exmor R CMOS	N/A	
Resolution	High Definition up to 1080/30p	N/A	
Minimum Illumination	0.1 lux (50 IRE, 1/30s, ICR off, slow shutter off, high sensitivity off) / 0.0008 lux (30 IRE, ICR on, slow shutter 1/4s, high sensitivity on)	N/A	
Zoom	30x Optical Zoom	N/A	
E-Zoom	12x	N/A	
Focal Length	129 mm to 4.3 mm	N/A	
Field of View	Optical 63.7° x 35.8° WFOV to 2.3° x 1.29° NFOV	N/A	
SYSTEM SPECIFICATIONS			
Gyro Stabilized			
ClearCruise Analytics			
Color Thermal Vision (CTV)			
Multispectral Imaging (MSX)			
Video Tracking			
Firefighter Mode			
Pan/Tilt Adjustment Range			
Analog Video Output			
Analog Video Connector Types			
Network Video Output			
HD-SDI Lossless Video Output			
Power Requirements			
Power Consumption			
ENVIRONMENTAL			
Operating Temperature Range	-13°F to +131°F (-25°C to +55°C)	-13°F to +131°F (-25°C to +55°C)	
Storage Temperature Range	-30°F to +158°F (-30°C to +70°C)	-30°F to +158°F (-30°C to +70°C)	
Automatic Window Defrost	Standard at Power-Up	Standard at Power-Up	
Sand/Dust Ingress	Mil-Std-810E or IP6X	Mil-Std-810E or IP6X	
Water Ingress	IPX6 (heavy seas, power jets of water)	IPX6 (heavy seas, power jets of water)	
Shock	15g vertical, 9g horizontal	15g vertical, 9g horizontal	
Vibration	IEC60945	IEC60945	
Lightning Protection	Standard	Standard	
Salt Mist	IEC60945	IEC60945	
Wind	100 knots (115.2 MPH)	100 knots (115.2 MPH)	
EMI	IEC60945	IEC60945	
PHYSICAL			
Weight	6.3 kg (13.9 lb) without mounting riser; 6.75 kg (14.9 lb) with mounting riser.	6.3 kg (13.9 lb) without mounting riser; 6.75 kg (14.9 lb) with mounting riser.	
Size	Camera: Base diameter: 222.2 mm (8.7 in.) Height: 328.3 mm (12.9 in.) Camera attached to mounting riser: Base diameter (with seal): 254.0 mm (10.0 in.) Height: 365.5 mm (14.4 in.)	Camera: Base diameter: 222.2 mm (8.7 in.) Height: 328.3 mm (12.9 in.) Camera attached to mounting riser: Base diameter (with seal): 254.0 mm (10.0 in.) Height: 365.5 mm (14.4 in.)	
RANGE PERFORMANCE			
Clear Weather Range Performance		metres	nm
Detect a 30-foot vessel	N/A	1850.0	1.0
NATO Target 2.3m x 2.3m @50%	N/A	1285.0	0.7
Detect Human Sized Target	N/A	559.0	0.3

M364		M364C		M364C LR	
		30 Hz or <9 Hz			
	24 ° x 18 °	24 ° x 18 °		18 ° x 13.5 °	
	18 mm	18 mm		25 mm	
	Fixed 12 ft (3m) to infinity	Fixed 12 ft (3m) to infinity		Fixed 12 ft (3m) to infinity	
	N/A	N/A		N/A	
	8x Continuous	8x Continuous		8x Continuous	
	FLIR Proprietary Digital Detail Enhancement	FLIR Proprietary Digital Detail Enhancement		FLIR Proprietary Digital Detail Enhancement	
	640 x 512 VOx Microbolometer	640 x 512 VOx Microbolometer		640 x 512 VOx Microbolometer	
	N/A	1/2.8" Exmor R CMOS		1/2.8" Exmor R CMOS	
	N/A	High Definition up to 1080/30p		High Definition up to 1080/30p	
	N/A	0.1 lux (50 IRE, 1/30s, ICR off, slow shutter off, high sensitivity off) / 0.0008 lux (30 IRE, ICR on, slow shutter 1/4s, high sensitivity on)		0.1 lux (50 IRE, 1/30s, ICR off, slow shutter off, high sensitivity off) / 0.0008 lux (30 IRE, ICR on, slow shutter 1/4s, high sensitivity on)	
	N/A	30x Optical Zoom		30x Optical Zoom	
	N/A	12x		12x	
	N/A	129 mm to 4.3 mm		129 mm to 4.3 mm	
	N/A	Optical 63.7° x 35.8° WFOV to 2.3° x 1.29° NFOV		Optical 63.7° x 35.8° WFOV to 2.3° x 1.29° NFOV	
	Yes				
	Yes			Yes	
				Yes	
	No				
	No				
	360° Continuous Pan, +/- 90° Tilt				
	NTSC/PAL User Settable				
	BNC				
	Single H.264 Network Video Stream				
	Yes				
	12 to 24vDC (24vDC recommended)				
	41 W typical, 56 W typical (with heaters on.) Note: FLIR recommends using a 75 W power supply				
	-13°F to +131°F (-25°C to +55°C)	-13°F to +131°F (-25°C to +55°C)		-13°F to +131°F (-25°C to +55°C)	
	-30°F to +158°F (-30°C to +70°C)	-30°F to +158°F (-30°C to +70°C)		-30°F to +158°F (-30°C to +70°C)	
	Standard at Power-Up	Standard at Power-Up		Standard at Power-Up	
	Mil-Std-810E or IP6X	Mil-Std-810E or IP6X		Mil-Std-810E or IP6X	
	IPX6 (heavy seas, power jets of water)	IPX6 (heavy seas, power jets of water)		IPX6 (heavy seas, power jets of water)	
	15g vertical, 9g horizontal	15g vertical, 9g horizontal		15g vertical, 9g horizontal	
	IEC60945	IEC60945		IEC60945	
	Standard	Standard		Standard	
	IEC60945	IEC60945		IEC60945	
	100 knots (115.2 MPH)	100 knots (115.2 MPH)		100 knots (115.2 MPH)	
	IEC60945	IEC60945		IEC60945	
	6.3 kg (13.9 lb) without mounting riser; 6.75 kg (14.9 lb) with mounting riser.	6.3 kg (13.9 lb) without mounting riser; 6.75 kg (14.9 lb) with mounting riser.		6.3 kg (13.9 lb) without mounting riser; 6.75 kg (14.9 lb) with mounting riser.	
	Camera: Base diameter: 222.2 mm (8.7 in.) Height: 328.3 mm (12.9 in.) Camera attached to mounting riser: Base diameter (with seal): 254.0 mm (10.0 in.) Height: 365.5 mm (14.4 in.)	Camera: Base diameter: 222.2 mm (8.7 in.) Height: 328.3 mm (12.9 in.) Camera attached to mounting riser: Base diameter (with seal): 254.0 mm (10.0 in.) Height: 365.5 mm (14.4 in.)		Camera: Base diameter: 222.2 mm (8.7 in.) Height: 328.3 mm (12.9 in.) Camera attached to mounting riser: Base diameter (with seal): 254.0 mm (10.0 in.) Height: 365.5 mm (14.4 in.)	
	metres		metres		metres
	3150.0		3150.0		3704.0
	1691.0		1691.0		2368.0
	926.0		926.0		1029.0
	nm		nm		nm
	1.7		1.7		2.0
	0.9		0.9		1.3
	0.5		0.5		0.6

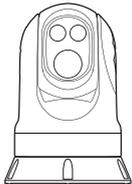
M400 SPECIFICATIONS



WHAT'S IN THE BOX:

EVERY M400 AND M400XR THERMAL CAMERA SYSTEM INCLUDES:

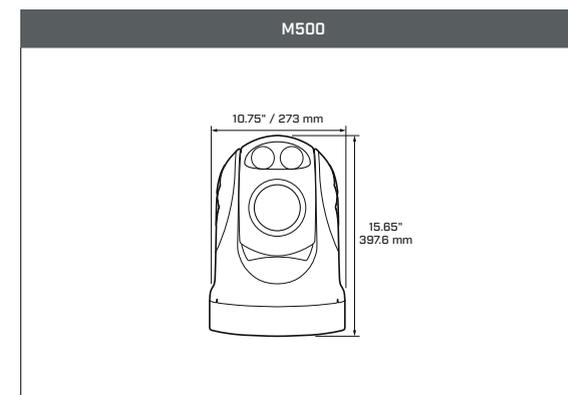
- Camera unit
- FLIR Joystick Control Unit (JCU2) kit
- 5-Port PoE+ Ethernet Switch
- Power cable, right angle, 12 AWG, 3 meters
- Ethernet cable, right angle to RJ45, 1 meter
- RJ45 waterproof Ethernet coupler
- AV and serial cable, right angle, 1 meter
- HD-SDI cable, 1 meter
- HD-SDI Isolation Transformer
- Camera base O-ring and stainless steel mounting hardware kit



Thermal camera shown with optional riser

	M400	M400XR		
MAIN THERMAL CAMERA				
Field of View	24° to 6° HFOV / 1.5° HFOV with e-zoom	24° to 6° HFOV / 1.5° HFOV with e-zoom		
Video Refresh Rate	<9 Hz or 30 Hz (NTSC and PAL)	<9 Hz or 30 Hz (NTSC and PAL)		
Focal Length	26 mm (Wide) to 105 mm (Narrow)	26 mm (Wide) to 105 mm (Narrow)		
Focus	Controlled by JCU	Controlled by JCU		
Optical Zoom	4x	4x		
Digital Zoom	4x Continuous	4x Continuous		
Detector Type	640 x 512 VOx Microbolometer	640 x 512 VOx Microbolometer		
MAIN VISIBLE CAMERA				
Detector Type	1/2.8" CMOS	1/2.8" CMOS		
Lines of Resolution	1920 x 1080	1920 x 1080		
Minimum Illumination	0.35 lux at F1.6, AGC On, 1/30s High Sensitivity Mode / 1.4 lux Normal Mode			
Zoom	30x Optical Zoom	30x Optical Zoom		
E-Zoom	12x (360x total digital and optical zoom)	12x (360x total digital and optical zoom)		
Focal Length	129 mm to 4.3 mm	129 mm to 4.3 mm		
Field of View	Optical 63.7° x 35.8° WFOV to 2.3° x 1.29° NFOV	Optical 63.7° x 35.8° WFOV to 2.3° x 1.29° NFOV		
SPOTLIGHT SPECIFICATIONS				
Type, Lumens, Beam°	LED, 580 Lumens, 5° Divergence Angle	LED, 580 Lumens, 5° Divergence Angle		
SYSTEM SPECIFICATIONS				
Gyro Stabilized	Yes	Yes		
Video Tracking	No	Yes		
Firefighter Mode	No	Yes		
Pan/Tilt Adjustment Range	360° Continuous Pan, ± 90° Tilt	360° Continuous Pan, ± 90° Tilt		
Analogue Video Output	NTSC or PAL, 30 Hz or <9 Hz	NTSC or PAL, 30 Hz or <9 Hz		
Analogue Video Connector Types	F-type BNC with BNC-to-RCA adapter included for video out	F-type BNC with BNC-to-RCA adapter included for video out		
Network Video Output	Dual, Independent H.264 Network Video Streams	Dual, Independent H.264 Network Video Streams		
HD-SDI Lossless Video Output	Yes	Yes		
Power Requirements	12-24V DC	12-24V DC		
Power Consumption	<50 W nominal; 130 W peak, 270 W 2/heaters	<50 W nominal; 130 W peak, 270 W 2/heaters		
ENVIRONMENTAL				
Operating Temperature Range	-13°F to +131°F (-25°C to +55°C)	-13°F to +131°F (-25°C to +55°C)		
Storage Temperature Range	-56° F to + 176°F (-50°C to +80°C)	-56° F to + 176°F (-50°C to +80°C)		
Automatic Window Defrost	Standard at Power-Up	Standard at Power-Up		
Sand/Dust Ingress	Mil-Std-810E	Mil-Std-810E		
Water Ingress	IPX 6 (heavy seas, powerful jets of water)	IPX 6 (heavy seas, powerful jets of water)		
Shock	15 g vertical, 9 g horizontal	15 g vertical, 9 g horizontal		
Vibration	IEC 60945; MIL-STD-810E	IEC 60945; MIL-STD-810E		
Lightning Protection	Standard	Standard		
Salt Mist	IEC60945	IEC60945		
Wind	100 knot (115.2 mph)	100 knot (115.2 mph)		
EMI	IEC 60945	IEC 60945		
PHYSICAL				
Weight	28 lbs (12.7 kg)	28 lbs (12.7 kg)		
Size	10.75" (273.1 mm) x 15.65" (397.6 mm) – 18.05" (458.7mm) high with top down riser			
RANGE PERFORMANCE				
Clear Weather Range Performance	metres	nm	metres	nm
Detect a 30-foot vessel	6853	3.7	6853	3.7
NATO Target 2.3m x 2.3m @50%	4722	2.5	4722	2.5
Detect Human Sized Target	1796	1.0	1796	1.0

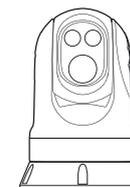
M500 SPECIFICATIONS



WHAT'S IN THE BOX:

EVERY M500 THERMAL CAMERA SYSTEM INCLUDES:

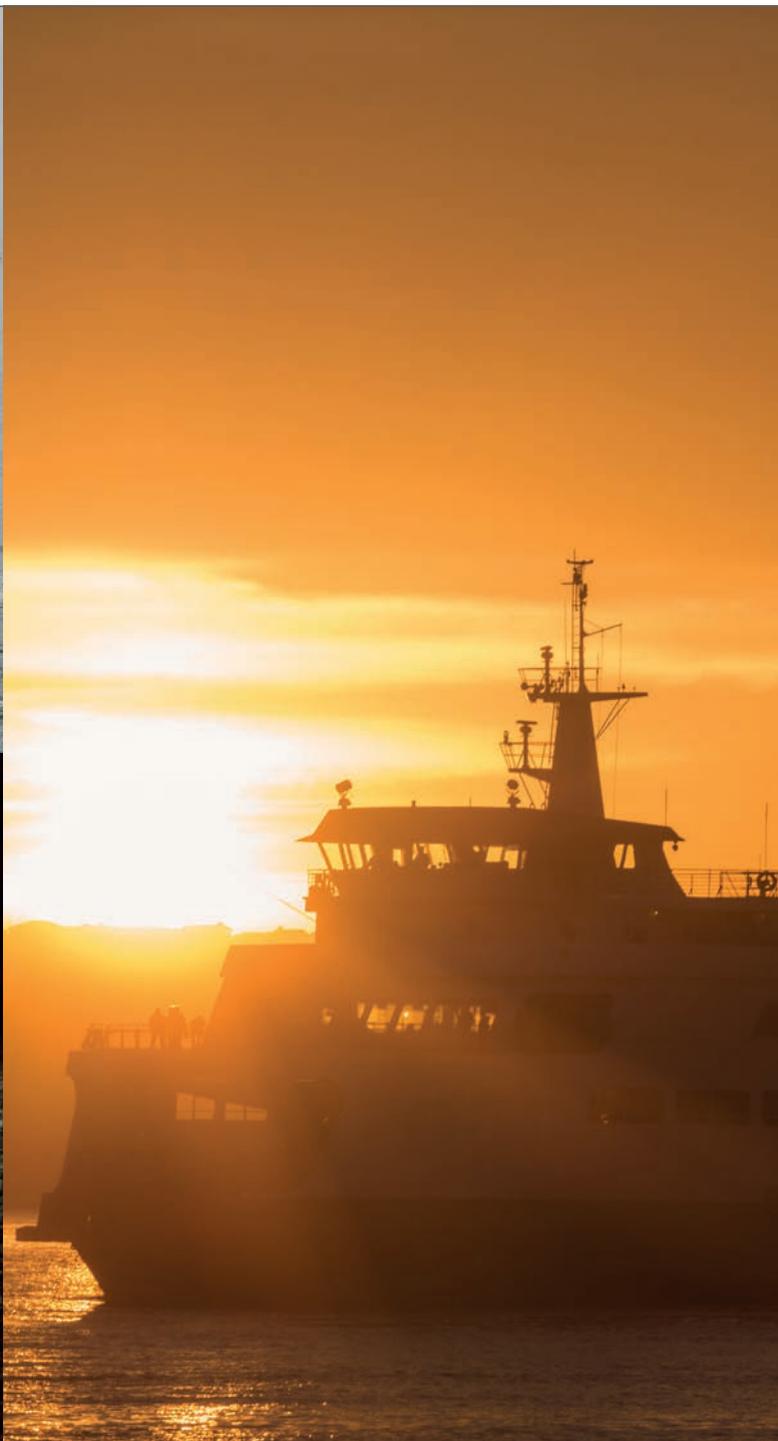
- Camera unit
- FLIR Joystick Control Unit (JCU2) kit
- 5-Port PoE+ Ethernet Switch
- Power cable, right angle, 12 AWG, 3 meters
- Ethernet cable, right angle to RJ45, 1 meter
- RJ45 waterproof Ethernet coupler
- AV and serial cable, right angle, 1 meter
- HD-SDI cable, 1 meter
- HD-SDI Isolation Transformer
- Camera base O-ring and stainless steel mounting hardware kit



Thermal camera shown with optional riser

M500		
MAIN THERMAL CAMERA		
Field of View	Optical 28° x 21° WFOV to 2° x 1.5° NFOV	
Video Refresh Rate	25 Hz (PAL) / 30 Hz (NTSC)	
Focal Length	19mm (Wide) to 275mm (Narrow)	
Focus	Controlled by JCU	
Optical Zoom	1x to 14x (continuous)	
Digital Zoom	4x Continuous	
Detector Type	Cooled MWIR InSb 640x512 Focal Plane Array	
MAIN VISIBLE CAMERA		
Detector Type	1/2.8" CMOS	
Lines of Resolution	1920 x 1080	
Minimum Illumination	0.35 lux at F1.6, AGC On, 1/30s High Sensitivity Mode / 1.4 lux Normal Mode	
Zoom	30x Optical Zoom	
E-Zoom	12x (360x total digital and optical zoom)	
Focal Length	129 mm to 4.3 mm	
Field of View	Optical 63.7° x 35.8° WFOV to 2.3° x 1.29° NFOV	
SPOTLIGHT SPECIFICATIONS		
Type, Lumens, Beam°	LED, 580 Lumens, 5° Divergence Angle	
SYSTEM SPECIFICATIONS		
Gyro Stabilized	Yes	
Video Tracking	Yes	
Firefighter Mode	No	
Pan/Tilt Adjustment Range	360° Continuous Pan, ±90° Tilt	
Analogue Video Output	NTSC or PAL, 30 Hz or <9 Hz	
Analogue Video Connector Types	F-type BNC with BNC-to-RCA adapter included for video out	
Network Video Output	Dual, Independent H.264 Network Video Streams	
HD-SDI Lossless Video Output	Yes	
Power Requirements	12-24V DC	
Power Consumption	250 W (max w/heaters)	
ENVIRONMENTAL		
Operating Temperature Range	-13°F to +131°F (-25°C to +55°C)	
Storage Temperature Range	-56° F to + 176°F (-50°C to +80°C)	
Automatic Window Defrost	Standard at Power-Up	
Sand/Dust Ingress	Mil-Std-810E	
Water Ingress	IPX 6 (heavy seas, powerful jets of water)	
Shock	15 g vertical, 9 g horizontal	
Vibration	IEC 60945; MIL-STD-810E	
Lightning Protection	Standard	
Salt Mist	IEC60945	
Wind	100 knot (115.2 mph)	
EMI	IEC 60945	
PHYSICAL		
Weight	32 lb (14.5 kg)	
Size	10.75" (273 mm) dia. x 15.65" (397.5 mm) ht	
RANGE PERFORMANCE		
Clear Weather Range Performance	metres	nm
Detect a 30-foot vessel	9260	5.0
NATO Target 2.3m x 2.3m @50%	6482	3.5
Detect Human Sized Target	3625	2.0





ABOUT FLIR

FLIR develops technologies that enhance perception and awareness. We bring innovative sensing solutions into daily life through our thermal imaging systems, visible-light imaging systems, locator systems, measurement and diagnostic systems, and advanced threat detection systems. Our products improve the way people interact with the world around them, enhance public safety and well-being, increase energy efficiency, and enable healthy and entertained communities.

We are a world leader in maritime thermal technology and have a long history of building reliable thermal imaging systems for demanding military and first responder missions. At FLIR, we develop and manufacture all the critical core technology inside our maritime cameras and provide an industry-leading warranty.

We understand the needs of our commercial and first responder customers, and our expert team can help you with technical information, grant writing assistance, or any other information you need to help you accomplish your goals. Thermal imaging is a powerful, lifesaving technology, and you can rely FLIR to be a trusted mission partner.

US EXPORT REGULATIONS

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