

Night-time navigation



Safety and security



Man overboard search

Powerful thermal imaging camera on Pan/Tilt for night-time navigation and other maritime applications.



Mariner™

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Mariner is a low cost thermal night vision system with fully integrated Pan/Tilt providing you with a 360° view in every situation. It provides crisp, clear thermal imagery in total darkness and light fog or smoke. It features the same thermal imaging technology found in many of FLIR's most sophisticated maritime systems, but is packaged for users who have navigation as their primary application. Unlike other night vision systems that require low amounts of light to generate an image, the Mariner needs no light at all.

Crisp thermal images – 320 x 240 pixels

The Mariner provides crisp, clear thermal imaging, 320 x 240 pixels. This allows the user to see more detail and detect more and smaller items. Advanced internal camera software delivers a crisp image without the need for user adjustments. The Mariner provides a high quality thermal image in any night- or daytime environmental conditions.

Wide-angle lens

The Mariner is equipped with a 19 mm wide angle lens. Not only does it give you an extremely wide field of view (36°), it also eliminates the need for stabilization of the system.

Easy-to-install

The images from the Mariner's 320 x 240 pixels detector can be displayed on virtually any existing multi-function (i.e. chart plotter) display that accepts composite video.

Designed for use in harsh maritime environments

The Mariner is an extremely rugged system. Its vital core is well protected, IPX6 rated, against humidity and water. The Mariner can be cleaned with a hose just like any other equipment. The Mariner operates between -15°C and +65°C.

The Mariner has a built-in heater to defrost its protective window. This ensures a clear lens and good quality infrared images displayed on your monitor even in extremely cold environments.





A wide variety of maritime applications

Easy-to-use Pan/Tilt system with intuitive joystick control

Intuitive joystick operation allows the captain to see 370° horizontal and +/-30° vertically, offering excellent situational awareness. Optionally a second joystick is available so that you can handle the Mariner from 2 different locations on your vessel. No special training is required to use the Mariner.



Lightweight

Weighing only 3.2 kg, the Mariner can be installed at any position on board. It can be mounted at an optimal observation point providing maximum field of view.

Increase safety and security on board

Any accident at sea does not only have severe consequences for the vessel but also for its passengers and crew. Protect your investment and the people on board by using the Mariner.

Night time navigation – See in total darkness

No longer will sunset and sunrise dictate your boating schedule. The Mariner allows you to see in total darkness and is well suited for night time navigation. You can clearly see channel markers, shipping lane traffic outcroppings of land, bridge pilings, floating debris, exposed rocks, other vessels and any other floating object that might damage your ship when undetected.

Short to medium range threat detection

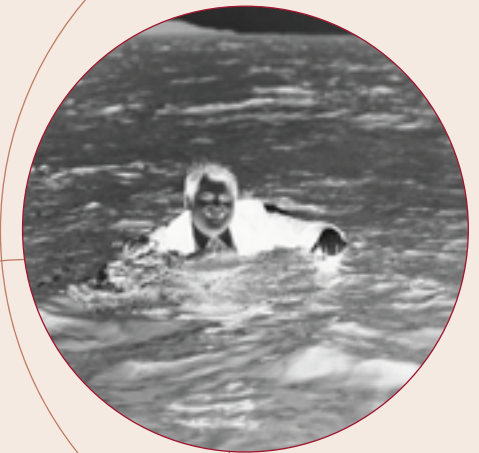
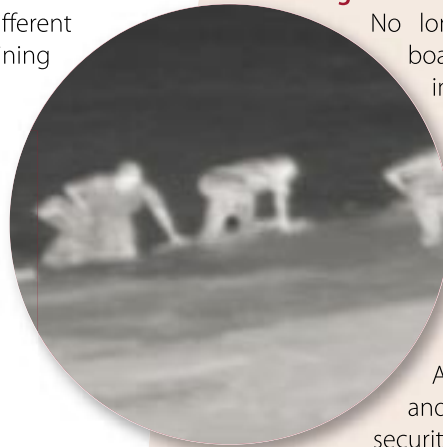
A shipboard environment can be very isolated and vulnerable. Today, more than ever, shipboard security is important. The Mariner allows you to see what is around you. Even at far distances. You can monitor activity in port or at anchor and see approaching vessels or people without alerting them that they are being watched.

Man overboard searches

Finding a person that has fallen overboard within the shortest possible time-frame is of the utmost importance. Not only can the person float away from the vessel but hypothermia is an important factor to take into account. Thanks to the FLIR Systems Mariner, you can quickly locate the drowning person and help him out of the water.

Day time navigation

The Mariner detects objects in any light condition. Also in broad daylight, the Mariner can detect objects that remain invisible for the naked eye. It is not affected by glare from the sun. The Mariner will allow you to see through the glare, and detect possible obstacles, when navigating during sunrise or sunset.



Mariner™ Technical specifications



IMAGING PERFORMANCE

Detector type	Focal Plane Array (FPA), uncooled microbolometer 320 x 240 pixels
Spectral range	7.5 to 13µm
Field of view	36° (H) x 27° (V) with 19 mm lens
Spatial resolution (IFOV)	2 mrad
Thermal sensitivity	100 mK at 25°C
Image frequency*	7.5Hz (NTSC) or 8.3 Hz (PAL)*
Focus	Fixed
Image processing	Digital Detail Enhancement (DDE)

PAN - TILT

Az Range; Az velocity	370° at 34°/sec
El Range; El velocity	+/-30° at 24°/sec (up) / 30° sec (down)

IMAGE PRESENTATION

Video output	NTSC or PAL composite video
Connector types	BNC (1) provides video output

POWER

Requirements	12 V DC +/- 25%
Consumption	3 W nominal, 15 W peak.

ENVIRONMENTAL SPECIFICATIONS

Operating temperature range	-15°C to +65°C
Storage temperature range	-40°C to +70°C
Automatic Window defrost	Yes
Humidity	100% relative humidity salt spray
Sand/dust, vibration, icing	Mil-Std-810E
Encapsulation	IPX6

PHYSICAL CHARACTERISTICS

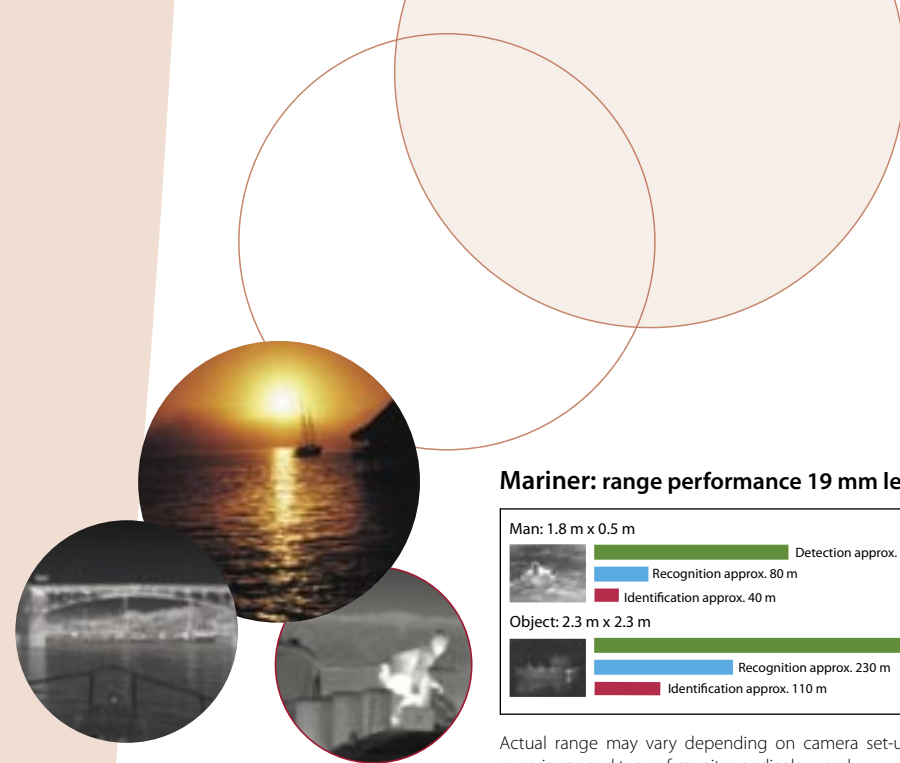
Camera Weight	3.2 kg
Camera Size	12.7 cm wide x 25.4 cm tall x 27.9 cm deep
Shipping weight (camera + packaging)	4.5 kg
Shipping size (camera + packaging) (L x W x H)	36 cm x 41 cm x 21 cm

INTERFACES

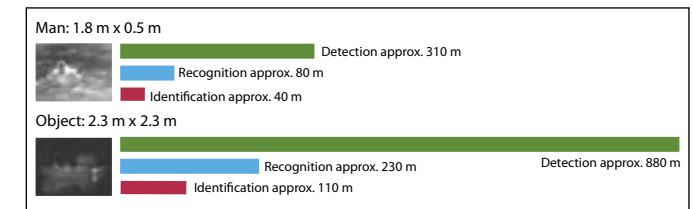
Joystick Control Unit	Command and control
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Standard Package

Pan/Tilt head with integrated thermal imager with 2.4 m of cable
Remote control Joystick with on/off control
Operator manual



Mariner: range performance 19 mm lens



Actual range may vary depending on camera set-up, environmental conditions, user experience and type of monitor or display used.

Assumptions:

50 % probability of achieving objective at specified distance given 2°C temperature difference and 0.85 / km atmospheric attenuation factor.



* 30 Hz NTSC or 25 Hz PAL available. Subject to approval of the US Department of Commerce for use outside the USA.



The Mariner is backed up by 2 years of full warranty.

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