

# Navigator II



Man overboard search



Safety and security



Night-time navigation

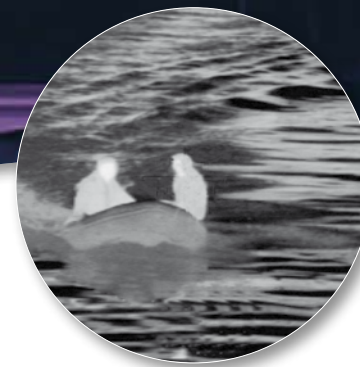


Navigator II static



Navigator II Pan/Tilt

Extremely affordable thermal imaging cameras for maritime applications



## Navigator II

Extremely affordable thermal imaging cameras for maritime applications

*The Navigator II is a very affordable thermal imager. 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 Navigator II needs no light at all.*

*The user can choose between two different versions of the Navigator II. Fixed mounted or Pan/Tilt.*

### Extremely affordable

As from now on, price is no longer an objection to using thermal imaging on board of your vessel.

### Crisp thermal images – 320 x 240 pixels

The Navigator II 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 Navigator II provides a high quality thermal image in any night- or daytime environmental conditions.

### Wide-angle lens

The Navigator II 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.

### Different versions available

The Navigator II comes in two different versions:

- Static: This is the fixed mounted version of the Navigator II. Once installed, it is always looking in the same direction.
- Pan/Tilt: Intuitive joystick operation allows the operator to rotate the Navigator II +/- 180° and to tilt it +/-45°. This way you can scan an entire area and look wherever you want.

Both versions are easy to use and require no operator training.

### Designed for use in harsh maritime environments

The Navigator II is an extremely rugged system. Its vital core is well protected, IP66 rated, against humidity and water. The Navigator II can be cleaned with a hose just like any other equipment. The Navigator II operates between -25°C and +55°C.

The Navigator II 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.





### Easy-to-install

Both versions of the Navigator II are extremely easy to integrate on board of a yacht. The images from the Navigator II's 320 x 240 pixels detector can be displayed on virtually any existing multi-function (i.e. chart plotter) display that accepts composite video.

### Easy-to-use Pan/Tilt system

The Navigator II Pan/Tilt is equipped with an intuitive joystick control which allows the captain to see +/-180° horizontal and/or +/-45° vertically. This offers excellent situational awareness. The pointing direction of the Navigator II will be indicated on your screen so that you always know in which direction the camera is looking.

### Lightweight

Extremely lightweight, both versions of the Navigator II can be installed at any position on board. They can be mounted at an optimal observation point providing maximum field of view.



### Remote control panel

The Navigator II Pan/Tilt comes standard with a remote control panel with integrated joystick to operate the Pan/Tilt. Extra remote control panels which can be used to control the Navigator II from up to four different locations on board of a vessel are optionally available. The following functions are directly accessible through the control panel :

- ON / OFF : switches the Navigator II on or off.
- DIM : controls the brightness of the control panel
- HOME : moves the Navigator II to an operator predefined position. When held down for at least 4 seconds, sets the current position as the new "home" position.
- ZOOM : switches between 1x and 2x electronic zoom.
- SCENE : cycles through "Night Running", "Day Running", "Man Overboard", or "Night Docking" settings to change the brightness and contrast of the thermal image. Varying conditions make one setting more appropriate than another for a specific task.
- B/W : select "black hot", "white hot" or "red hot" video image mode. Hot object appears black, white or red respectively depending on the selected mode.
- JOYSTICK : moves the Navigator II left and right and/or up and down.



Thanks to small icons conveniently placed at the bottom of the thermal image, the captain can see immediately in which direction the Navigator II is looking, whether it is in the "home position" or not. Also other settings of the camera can easily be read from these icons.

## A wide variety of maritime applications

### 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 Navigator II.

### Night time navigation – See in total darkness

No longer will sunset and sunrise dictate your boating schedule. The Navigator II 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 Navigator II 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 Navigator II, you can quickly locate the drowning person and help him out of the water.

### Daytime navigation

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

# Navigator II Technical specifications



## IMAGING PERFORMANCE

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

## PAN - TILT (pan/tilt version only)

Az Range	+/- 180°
El Range	+/- 45°

## IMAGE PRESENTATION

Video output	NTSC or PAL composite video
Connector types	BNC (1) provides video output BNC to RCA adapter included

## POWER

Requirements	12 V DC + 30% / -10%
Consumption	Static: 3 W nominal, 30 W peak. Pan/Tilt: 5 W nominal, 45 W peak.

## ENVIRONMENTAL SPECIFICATIONS

Operating temperature range	-25°C to +55°C
Storage temperature range	-50°C to +80°C
Automatic Window defrost	Yes
Humidity	100% relative humidity salt spray
Sand/dust, icing	Mil-Std-810E
Encapsulation	IP66
Shock	IEC 60068-2-27 and Mil-Std-810
Vibration	Mil-Std-810E

## PHYSICAL CHARACTERISTICS

<u>Static:</u>	
Camera Weight	3.0 kg
Camera Size	18.8 cm tall x 10.2 cm wide x 18.5 cm deep
Shipping weight (camera + packaging)	5.0 kg
Shipping size (camera + packaging) (L x W x H)	36 cm x 41 cm x 21 cm

## Pan/Tilt:

Camera Weight	5.0 kg
Camera Size	24.1 cm tall x 10.2 cm wide x 18.5 cm deep
Shipping weight (camera + packaging)	6.4 kg
Shipping size (camera + packaging) (L x W x H)	36 cm x 41 cm x 21 cm

## Standard Package

Thermal imager (Static or Pan/Tilt) with 7.6 m of cable and power switch - Remote control panel with integrated joystick (Pan/Tilt version only) - Operator manual



The Navigator II is backed up by 2 years of full warranty.

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

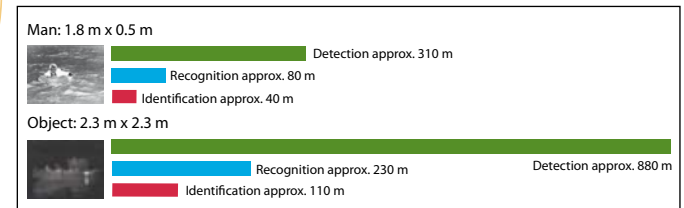


Navigator II Pan/Tilt



Navigator II static

## Navigator II: 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.

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