

# Navigator II™







Video camera frame-grab

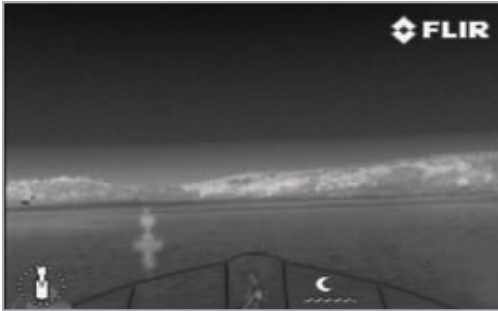
Black Hot thermal image

## Cruise with FLIR

Would you spend more time on the water if darkness and poor visibility didn't matter? The Navigator II thermal imager lets you see floating debris, outcroppings of land, channel markers, and other boats in total darkness and bad weather, allowing you to navigate with confidence day and night. Don't be afraid of the dark – cruise with Navigator II.

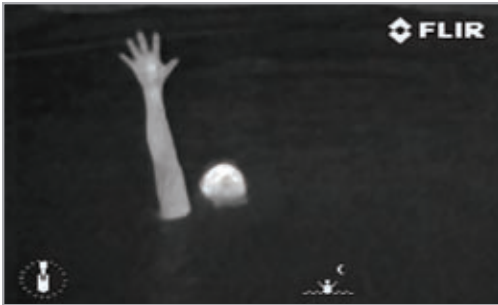
- Thermal imagers see heat, not light, enabling them to see at night or through the sun's blinding reflection.
- Navigate safely and confidently at night.
- See clearly in total darkness, through smoke and haze.
- FLIR thermal imagers are truly remarkable – turning night into day.





## Navigation

Thermal imaging cameras make navigation safer and take the guesswork out of cruising day and night. Navigator II makes crystal-clear images regardless of lighting conditions, allowing you to see and avoid virtually any natural or man-made obstacle like floating debris, outcroppings of land, bridge abutments, and other vessels. Navigate with FLIR and make everyone on board safer; protect you and your boat from things that go 'bump' in the night.



## Search and Rescue

When someone falls overboard, retrieving them from the water in a timely manner can make the difference between life and death. The Navigator II thermal imager uses the same cutting-edge FLIR technologies used by Coast Guards, police agencies and militaries around the world for search and rescue.

## Easy to Use

Navigator II includes features that make it easier to use than any other pan/tilt thermal imager on the market. On-screen symbology, FLIR's unique programmable Home position, Accu-Point camera control, and an improved Joystick Control Unit all make the Navigator II a breeze to use.



## Best Image

FLIR knows that the maritime environment is an ever-changing one, so Navigator II comes with color palettes and four Auto-Gain Control (AGC) presets for use in daytime running, nighttime running, man overboard situations, and nighttime docking environments.



Sundancer  
300

## Navigator II: inside and out

Navigator II delivers crisp, clear video in total darkness, and it's simple to use – if you can watch TV, you can use the Navigator II. What's more, FLIR offers two configurations of Navigator II: fixed-forward, and a full Pan/Tilt system. The Pan/Tilt version comes with a precision Joystick Control Unit for easy system control. Don't let darkness drive you off the water: cruise with Navigator II.



Fully-marinated; Navigator II thrives in harsh maritime conditions

Automatic window defrosting for clear imaging in harsh conditions

36° field of view for excellent situational awareness

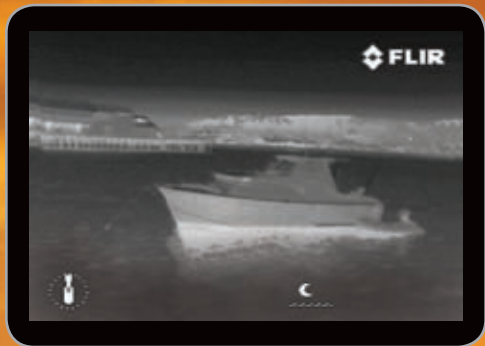
2X e-zoom available in Pan/Tilt configuration

Full Pan/Tilt configuration available for maximum flexibility



### Navigator II sets itself apart with features unique in the maritime thermal imaging industry:

- Best in class image quality with FLIR's patented Digital Detail Enhancement image processing.
- FLIR's exclusive Accu-Point lets you know where the camera is pointing; the Home feature returns the camera to an operator-selected position at the touch of a button.
- Two black and white and three color display choices.
- Preset gain adjustment for different operating conditions.
- Intuitive Joystick Control Unit with single-button access to all features.
- 2-year warranty – no one stands behind their products like FLIR.







## Navigator II's Joystick Control Unit

The Pan/Tilt Navigator II is easy to use, and has only a few simple controls.

**On/Off** – Turns the camera video and the Joystick Control Unit camera controls on and off.

**Joystick** – Allows the operator to control where the Navigator II is looking. Move the Joystick to the left or right to rotate the camera in the corresponding direction; tilt it forward and back to tilt the camera up and down.

**DIM** – Controls the brightness of the Joystick Control Unit panel.

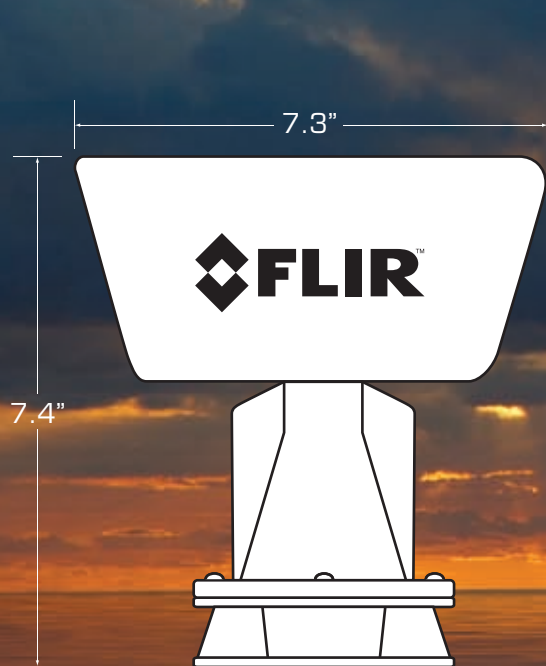
**HOME** – The programmable Home position drives the Navigator II to a known bearing relative to the bow of your vessel, usually straight ahead. Operators can use the Home position as a reference and as a rest position for use while navigating for long periods.

**ZOOM** – Toggles between the 1x and 2x zoom settings.

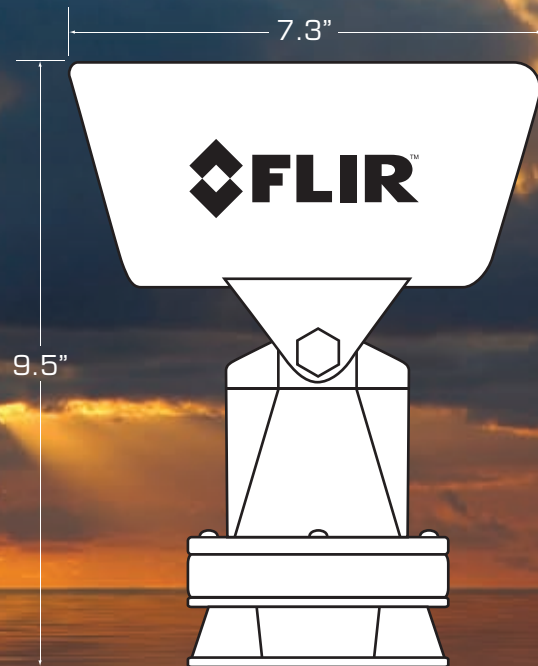
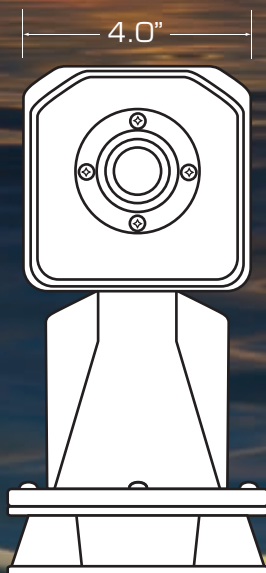
**SCENE** – Cycles through Night Running, Day Running, Man Overboard, or Night Docking gain settings to change the brightness and contrast of the image.

**B/W** – Selects black hot, white hot, red hot, fusion or rainbow video image mode. Hot objects display differently depending on the selected mode.

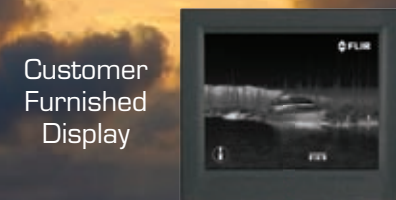




Fixed



Pan/Tilt



Video Out



Optional 2nd Control Station



Power In

Joystick Control Unit

3.25"



## Navigator II®

Size	7.3" x 4.0" x 7.4"	7.3" x 4.0" x 9.5"
Weight	6lb	7lb

### Thermal Imaging Performance

Sensor Type	Microbolometer	Microbolometer
FOV	36° x 27°	36° x 27°
Focal Length	19mm	19mm
E-Zoom	N/A	2x
Image Processing	Digital Detail Enhancement (DDE)	Digital Detail Enhancement (DDE)

### System Specifications

Pan/Tilt Coverage	N/A	360° Az/ +/-45° El
Video Output	NTSC or PAL	NTSC or PAL
Connector Types	BNC with BNC-RCA adapter	BNC with BNC-RCA adapter
Power Requirements	12VDC	12VDC
Power Consumption	3W nominal, 30W peak	5W nominal, 45W peak

### Environmental

Operating Temp	-25°C to 55°C	-25°C to 55°C
Storage Temp	-50°C to 80°C	-50°C to 80°C
Automatic Window Defrost?	Yes	Yes
Humidity	100% RH salt spray	100% RH, salt spray
Sand, Dust, Ice	Mil-Std 810E	Mil-Std 810E
Cover	IP66	IP66
Shock	Mil-Std 810	Mil-Std 810
Vibration	Mil-Std 810E	Mil-Std 810E

### Joystick Control Unit

Dimensions	N/A	3.25" x 6.13"
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### Navigator II Range Performance

Man in water

Detection: ~.25 mi

Small boat

Detection: ~.6 mi

Actual range may vary depending on camera set-up, environmental conditions, user experience, and type of monitor or display used. Navigator II's specifications are subject to change without notice.



## What is thermal imaging?

Call it “infrared energy,” call it “thermal energy,” call it “heat.” It’s really all the same.

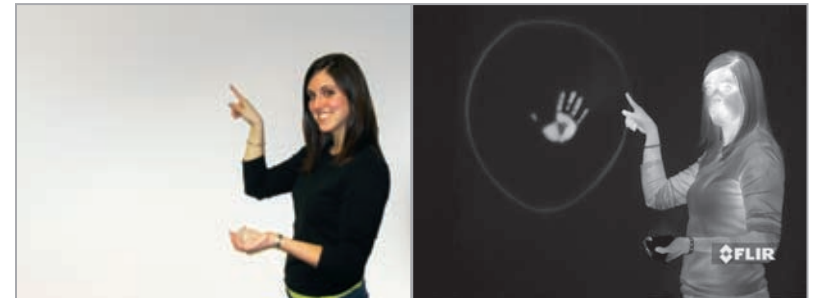
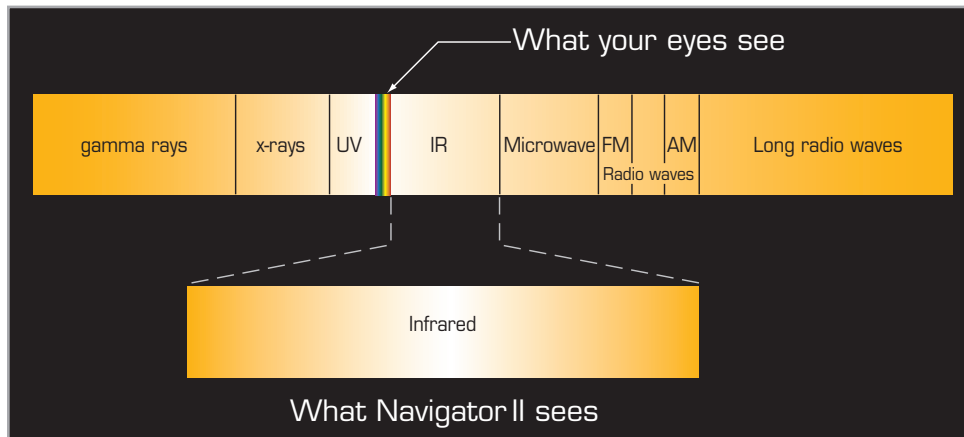
Infrared imagers like Navigator II make pictures from heat, not light; detecting and displaying the tiny differences in heat energy that are around us all the time. Day and night, in good weather and bad, everything gives off infrared energy. What’s more, the hotter something is the more thermal energy it gives off. Navigator II takes this energy in and makes pictures that look like black and white TV video.

## Infra-what?

Infrared energy is part of a continuum of radiation called the electromagnetic (EM) spectrum. The EM spectrum includes gamma rays, X-rays, ultraviolet, visible light, infrared, microwaves, and radio waves. The only part of the EM spectrum that we can see is the very small band called “visible light.”

When visible light bounces off something, our eyes sense it, our brains interpret it, and we experience that as sight. Household cameras and camcorders work the same way: they detect reflected visible light, and their electronics create pictures we can see. Thermal imagers, on the other hand, see infrared energy that is given off by everything around us, and create images from this emitted energy.

Because everything generates heat, thermal cameras can see as well at night as they can during the day. Visible-light detectors (like our eyes) are not very useful at night or in poor weather without the help of lights. Navigator II doesn’t have this problem.



Thermal imagers make pictures by detecting and displaying differences in heat. Everything generates thermal energy – even the ice cubes she’s holding in her left hand. The friction from her finger and the heat from her hand left enough heat on the wall to show up clearly to the thermal imager.



## About FLIR Systems

As the largest commercial infrared company in the world, FLIR Systems has fielded more high quality, military and law enforcement-grade maritime imaging systems than anyone on the planet. Our rugged, stabilized imagers are on thousands of civil and maritime platforms – surface and airborne – in the US and around the world. That's more than all other manufacturers combined.

FLIR's powerful, rugged, all-weather thermal imagers allow you to navigate safely and confidently - seeing obstructions, buoys, and other vessels through total darkness. From the Navigator II to the longer-range Voyager to the battle tested SeaFLIR, FLIR's family of maritime thermal imagers will help you see at night, and keep you safe.

Whether you're heading out early, returning late or cruising around the clock, FLIR has a thermal imager to meet your needs.

For additional technical information, or to see a demonstration of the Navigator II, contact a FLIR representative. Visit [www.FLIR.com](http://www.FLIR.com) to see more videos, and see how thermal imaging can keep you on the water, night and day.





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