



High-Resolution Thermal Imager



High-Definition Day Camera



NIGHT NAVIGATOR™ 220 CAMERA SYSTEM

The Night Navigator™ 220 combines a High-Resolution Thermal Imager and a High-Definition Day Camera in a gyro-stabilized gimbal with 360° continuous azimuth rotation which can be mounted in dome up or down configuration. The Thermal Camera has a 18° to 5.9° (3x optical/4x digital zoom). During the day stunning images are created by a full 1080i high definition colour camera with a 63° – 2.3° field of view (30x optical and 12x digital zoom).

APPLICATIONS

- Night and day navigation
- Early detection of potential threats
- Obstacle detection: small craft, debris, ice/bergy bits, etc.
- Search and Rescue support
- Recognition and identification of threats from complete darkness to full daylight

High Resolution Uncooled Thermal Imager

- 640x480 pixel resolution
- 18° to 5.9° field of view

High-Definition Day Camera

- 63° to 2.3° field of view
- 1080i or 720p selectable
- 30x optical zoom
- 12x digital zoom

3-Axis Gyro Stabilization

- Resolved through 2-axis positioning
- Non Stabilized version – NN220S

Hardware and IP Based Controls

- Panel Mount Controller
- Touchscreen control - options

SYSTEM SPECIFICATIONS

UN-COOLED THERMAL IMAGER	
Field of View:	18° to 5.9° Continuous
Sensor:	17 μm VOx
Video Format:	NTSC/PAL
Resolution:	640 x 480 pixels
NETD:	≤ 50 mK
Spectral Range:	8 to 14 μm
Optical Zoom:	3x
Digital Zoom:	4x
Focal Length:	35mm - 105mm
Frame Rate:	30fps
HIGH-DEFINITION COLOR DAY CAMERA	
Field of View:	63° to 2.3° (1080i)
Sensor:	1/2.8" CMOS
Video Format:	1080i/720p/NTSC/PAL
Sensitivity:	0.013 lux
Focus:	Auto/Manual
Iris:	Auto/Manual
Optical Zoom:	30x
Digital Zoom:	12x
Focal Length:	4.3 mm - 129mm
Frame Rate:	30fps
CONTROLLER	
Type	Panel Mount Controller
Controller Display	5" LCD
Interface	RADAR, GPS, AIS, Ethernet, RS232
MECHANICAL	
Width	384 mm
Height (Above Deck)	508 mm
Height (Below Deck)	255 mm minimum
Weight	37 kg
Pan / Tilt Range	-25° +90° / 360° continuous
Max Speed	40°/sec AZ and 40°/sec EL
Power Requirement	20-34 VDC, 200 W
Operating Temperature	-40 °C to +50 °C
Environmental Rating	IP67
Positioning Accuracy	0.0064 °
Gyro	3-axis resolved through 2-axis positioning
Sight Stabilization	<2 mrad. RMS*
DISPLAYS	
Customer supplied/specified	

*with an input perturbation of 20° at 0.25Hz

VIDEO DISPLAY AND SIGNAL

NTSC (RS170) or PAL (CCIR) format : Must be specified at time of order
On-Screen Information Display : Position, Heading, Speed over Ground, Reticule, & Camera Functions

IP NETWORK CONTROL

TCP/IP network control with Night Navigator or Customer Supplied “Graphical User Interface” (GUI). Ethernet and serial ports available.

VIDEO OVER IP

The Night Navigator 220 is Network ready for control via PC or other LAN device. Contact Current Corporation for a list of available options to view the video over IP and or interface the Night Navigator 220 system with existing LAN hardware configurations.

RADAR TRACKING

Cursor Slaving and ARPA Target Slaving with data display as video overlay
Protocol: NMEA0183 (RS422/RS232)
Range of target from the ship
Bearing of the target

PANEL MOUNT CONTROLLER

Radar Cursor & ARPA Target Slaving : Protocol: NMEA0183 (RS422/RS232)
Integrated graphical information display : Position & Camera Functions

BENEFITS

INCREASED NAVIGATION DAY & NIGHT:

See Navigational Aids at a Greater Distance

Lit and unlit markers, buoys, flashing beacons

See Tidal Movement

Determine drift by observing tidal movement.

Aid in Docking

Set, approach and drift are aided by observing the dock pilings at night.

Overcome Glare

Glare from rising/setting sun is a non-issue with the Night Navigator. Since Thermal Imaging measures heat, direct sunlight does not affect the image.

REDUCED OPERATING COSTS:

Reduce Bridge Personnel Stress

Increase bridge personnel confidence and reduce stress by providing clear navigational vision day and night. This provides greater crew efficiency and can potentially decrease sick or stress leave.

Reduce Maintenance Costs

Logs, crab pot floats and lines and fishing net floats are some of the small objects that ships become entangled with. Avoidance of these objects allows for a reduction in the regular maintenance.

INCREASED ENTERTAINMENT & PR VALUE:

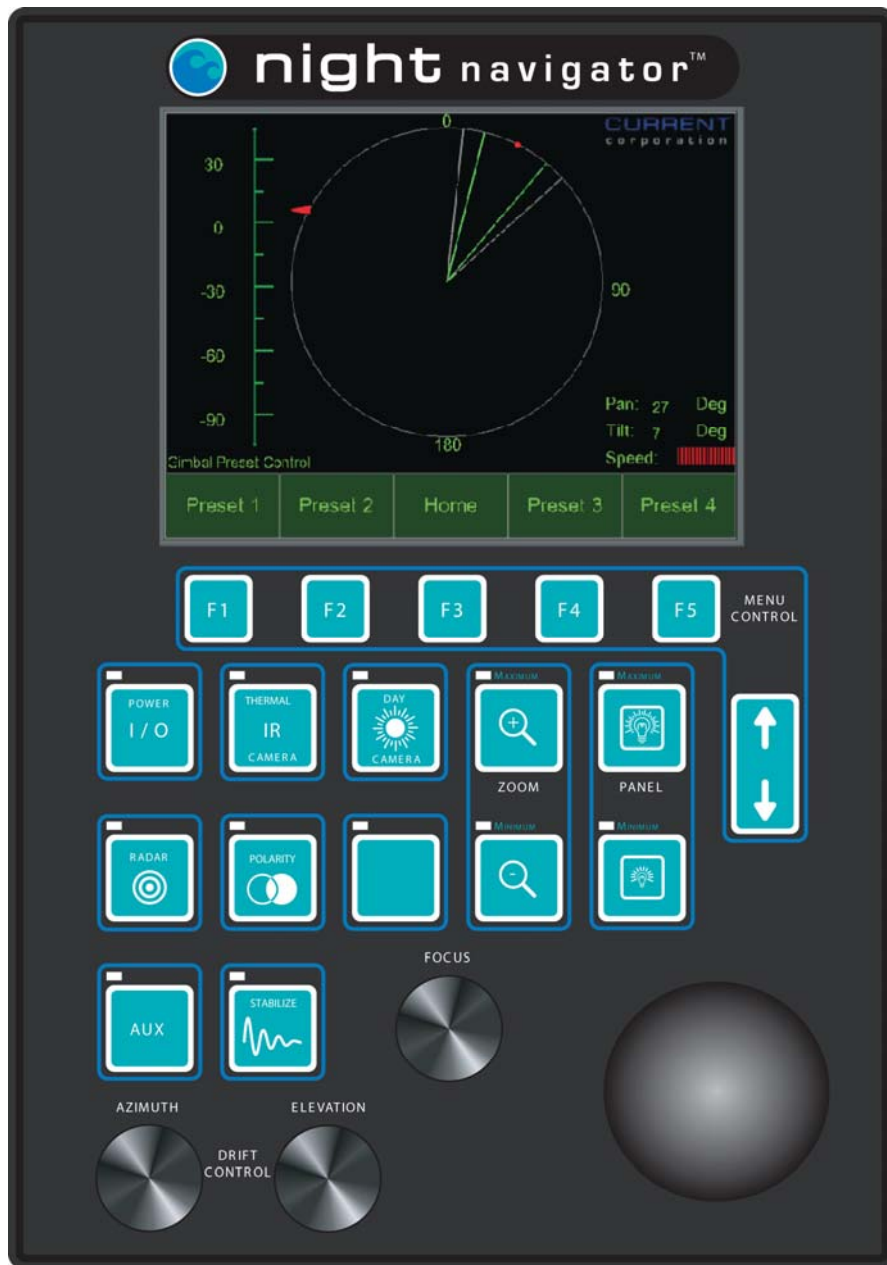
Live High-Definition Video Feed

High-Definition Day Camera footage can provide passenger entertainment vessel-wide during daytime transit. Port entry/departure images as well as scenic areas are beautifully displayed on HD monitors.

Increase Passenger Confidence & Public Relations

Utilizing an advanced camera system increases passenger confidence and safety. This investment raises the positive public image of the vessel, fleet or company.

CONTROLLER QUICK REFERENCE GUIDE



HARDWARE & IP-BASED CONTROLS

- Panel mount controller
- Touchscreen control via iNightNav App for iPod/iPad
- GUI control via ship and LAN



Panel-Mount Hardware Controller



Software IP Controller



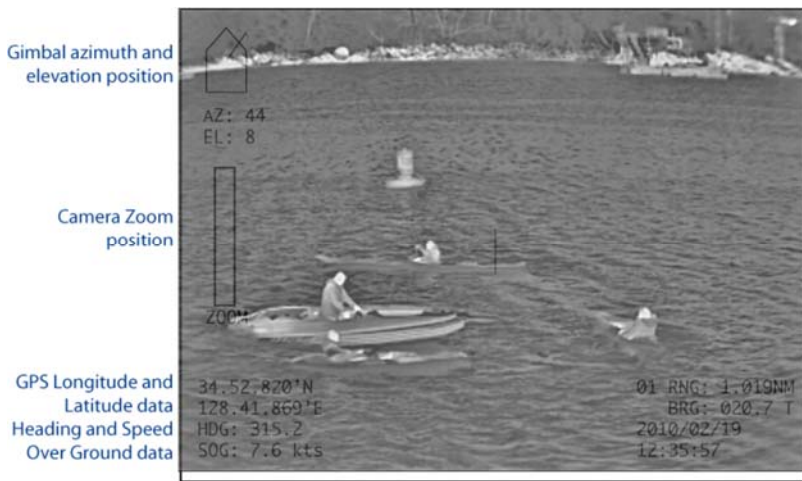
iNightNav
Available on the
AppStore
iPod/iPad App
Controller

THERMAL DETECTION & RECOGNITION RANGES

DESCRIPTION	HUMAN TARGET (1.8M X 0.5M)		NATO TARGET (2.3M X 2.3M)	
	DETECTION	RECOGNITION	DETECTION	RECOGNITION
Night Navigator™ 220				
640 x 480 pixels				
Wide FoV 18°	1.3 km	0.3 km	3.2 km	0.5 km
Narrow FoV 5.9°	3.9 km	1.0 km	9.5 km	2.4 km

*Theoretical calculation using Johnson's criteria & not accounting for atmospheric conditions

VIDEO OVERLAY MENU



All the data above is available on the video, if the operator chooses in the menu to display the data on the screen, it will also record on the DVR. The data on target and camera location come from the GPS and radar.

Radar (ARPA) target:

01 RNG: distance to target #1 in Nautical Miles
BRG: Bearing: location of the target

GPS location of the vessel:

Longitude
Latitude

Direction of the camera:

- HDG: Heading: Direction of the ship
- SOG: Speed over ground
- Gimbal azimuth (AZ) and elevation (EL) position: direction the camera is looking at relative to the 0° bow of the ship

Date & Time

MAN OVERBOARD



SMALL UNIDENTIFIED VESSEL



OPTIONAL FEATURES AND ACCESSORIES AVAILABLE

VIDEO TRACKING MODULE



Video Tracking Module Box



Automatic object detection mode

Video Tracking greatly adds value to both sensors, allowing the Patrol Vessel officer to track potential targets directly from the video display. This option requires the installation on the vessel of a Video Tracking Module, between the Sensor platform and the controller. The additional box does not need to be visible on the bridge but needs to be accessible for service.

- ◆ Allows the user to track a target that is not detectable on the radar cursor nor as ARPA target. The target is selected by the operator on the video screen.
- ◆ Allows the user to set the camera to automatically detect moving objects in the scene.
- ◆ Offers a Navigation Stabilization mode to mechanically stabilize only the vertical axis.



Tracking of high speed small motorboat with Day camera



Tracking of fishing boat with thermal camera



Tracking of floatplane with Day camera



Tracking of floatplane with thermal camera

CONTINUED...

DIGITAL VIDEO RECORDER

The DVR is a commercial off the shelf (COTS) rugged digital video recording system. Standard configuration provides H.264 compression and recording of 2 analogue video channels at full D1 resolution and frame rate. The unit can be controlled over a TCP/IP network. 2 channel full frame rate NTSC/PAL simultaneous recording

- 2 channel full frame rate NTSC/PAL simultaneous recording
- H.264 recording
- Internal shock mounted 500GB HDD
- Control and Playback via Ethernet connection
- Power: 20V to 30V DC, <15W
- Operating Temp: 0 to +55degC
- Weight: 2.1kg
- Dimensions: 180 x 220 x 50mm

HIGH DEFINITION (HD) IMAGE INTENSIFIED NIGHT VISION

Field of View	20° Fixed
Sensor Type	Super Gen II+
Video Format	1080i/720p/NTSC/PAL selectable
Sensitivity	1 microlux
Spectral Range	450 to 950 nm
Focus	Motorized Manual
Iris	Motorized Manual
Frame Rate	30fps

INVERTED MOUNTING

Dome down mounting for better visibility in the direct vicinity of the vessel: tilt range +30° to -90°

CUSTOM COLOUR

Dome colour can be matched to customer specifications

COLD WEATHER PACKAGE

Standard operating temperatures are -20°C to +50°C. The cold weather package allows a lower operating temperature; down to -40°C for operations in the Arctic and Antarctic regions and includes;

- Special heating modules in the base can and payload housing, with automatic thermostatic control,
- Lens defrosting system
- Insulation at critical locations to conserve heat
- Hydrophobic / anti-icing coating on the gimbal.

TRAINING AND SERVICE (TCCT)

Onsite termination, calibration, commissioning, and training not included. Current Corp technicians can travel to the location of the vessel for installation. We organize regular training sessions at Current Corporation for installation and training.

FOR FURTHER QUESTIONS, PLEASE CONTACT:

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