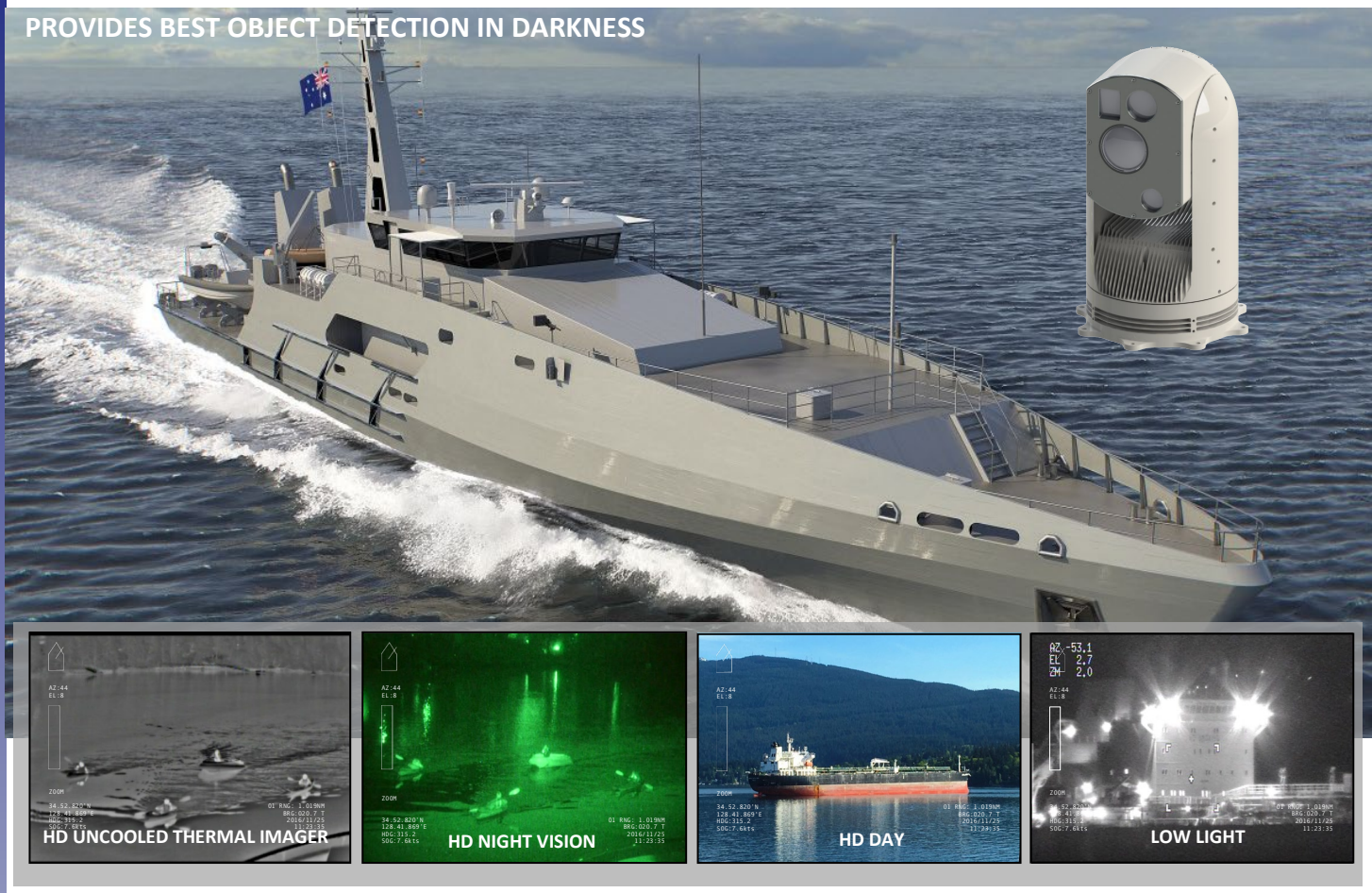
NN 4000 Series

NN 4046

HD UNCOOLED THERMAL IMAGER + HD NIGHT VISION + HD DAY CAMERA

PROVIDES BEST OBJECT DETECTION IN DARKNESS



Electro-Optical/Infra-Red camera system
c/w Full HD Thermal Imager + HD Night Vision

The Night Navigator™ 4046 is a rugged, low maintenance, compact electro-optical system designed for military and paramilitary end users. Mast mounted payload, this imaging system offers exceptional performances. It integrates a **High-Definition LWIR uncooled thermal imager**, a **High-Definition Night Vision Imager** and a **High-Definition day camera / low light** in a **gyro-stabilized** sensor platform. It can be controlled from the bridge of a ship or through IP network in a control room or remote location. This COTS system is built to MIL Std.

APPLICATIONS

- ISR (Intelligence, Surveillance and Reconnaissance)
- EEZ (Exclusive Economic Zone) protection
- Long-Range Surveillance
- Unmanned Surface Vessels operation
- Autonomous Vessels
- Maritime SAR
- Safety and security at anchor and in the harbour
- Tracking of potential threat or man overboard
- Situational awareness
- Anti-smuggling operations

BENEFITS

- **Rugged,** marine, **low maintenance** design
- **Zooms** 24x in HD LWIR uncooled thermal and 360x in HD day
- **Detects** a NATO target over 10km, night and day
- **Provides a clear, highly detailed image**, in HD day, even into the digital zoom range
- **Increases object detection** in low level of light with best of class low light sensitivity
- **Provides the best object detection** in darkness, when the temperature of the object blends in the temperature of its surroundings
- **Tracks** Radar cursor, ARPA Target, AIS and video targets
- **Streams H.264** (HD) video with PiP or two video streams and **communicates digitally** over IP network (Ethernet)
- **Outputs video in dedicated coax cable to the bridge in SDI**
- **Enables Picture in Picture (PiP)** of two live video signal outputs (zoom synchronized or independent)
- **Single payload** with no junction boxes or interface modules simplifies installations and retro fits, while reducing maintenance
- **Standard mounting and cabling** for all Night Navigator 4000 series enables ease of payload swaps and future upgrades
- **Designed to withstand marine environmental conditions** and proven by over 15 years and hundreds of successful operating installations worldwide

CURRENT

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NN 4046

SYSTEM FEATURES

THERMAL CAMERA	***HIGH DEFINITION***
Spectral range:	8 – 14 µm Uncooled thermal imager
Sensor type:	HD LWIR (Microbolometer)
Resolution:	1024x768 pixels (outputted as 1920x1080 pixels)
Field of View:	41° (wide) to 6.6° (narrow)
Zoom:	6x continuous optical, 4x digital zoom
Frequency:	30 fps, full frame rate for export
Detection range [1]:	NATO target over 10km / Human over 4km
DAY / LOW LIGHT CAMERA	***HIGH DEFINITION***
Sensor type:	1/2.8" CMOS
Field of View:	63° to 2.3° FoV in HD mode, 1080p30
Optical zoom:	30x continuous
Digital zoom:	12x continuous
Window coating:	Hydrophobic
LOW LIGHT HD CAMERA (FUNCTION)	
Sensor type:	1/2.8" CMOS
Low light sensitivity:	0.0015 Lux in B&W mode and 0.0008 Lux in Color mode
NIGHT VISION IMAGE INTENSIFIED	***HIGH DEFINITION***
Sensor type:	4G Night Vision Image Intensifier tube
Resolution:	1280x1024 pixels resolutions
Low light sensitivity:	0.15 microlux light sensitivity
Field of View:	20° fixed
Video format:	1080p/720p
Frequency:	30 fps

RADAR CURSOR, ARPA & AIS TARGET TRACKING

Slew-to-cue allows target detected from the Radar and AIS to be tracked automatically by the EO/IR. Interface between Radar and AIS over NMEA0183 communication standard in RS232 or RS422, through supplied Network Interface Box. Ship GPS data is also fed through NMEA 0183 communication to register and display the ship's position in Latitude, Longitude, Date, Time and Speed over Ground. Radar target info displayed in videos (ARPA Target, Range and Bearing).

VIDEO TRACKING

Automatic pursuit of an object of interest or threat selected on the display by the operator, without any continuous input. Both the infrared and day sensors automatically track the target, even with small obstructions in their path.

CONTROLLER: HARDWARE OR GUI, IP BASED AND REMOTE-CONTROLLED SOLUTIONS (OPTIONS)

1. Video GUI (with optional USB joystick / Rugged Rigid Grip): video and control combined on panel PC / Laptop.
2. Control GUI (Graphical User Interface), either on **dedicated touchscreen** display (Panel PC) or as pop up window in PC; with optional USB joystick / Rugged Rigid Grip.
3. Compact controller integrating joystick and 2.4" display for orientation & troubleshooting.
4. Protocol for interface to Command & Control System
All controllers offer Built-in Test for remote diagnostic and are configured for optional additional controllers, remote control, and autonomous navigation.

PAYLOAD SPECIFICATIONS	
System type:	3 axis gyro stabilization[2] c./w. enhanced video stabilization
Pan Range:	Continuous 360° AZ rotation
Tilt range:	+/-90° elevation movement, including stow position
Colour:	Matterhorn White - gloss. Custom colour upon request.
SYSTEM INTERFACE	
Video format:	SDI
Video streaming:	H.264 in HD with PiP or 2 video streams accessed via net0 and net1
Data:	Radar cursor / ARPA target / AIS over NMEA 0183 via RS422 or RS232
Control:	Over IP network
ENVIRONMENTAL	
Ingress Protection Mark:	IP67
Compliant to:	MIL-STD 810 & MIL-STD 461
Operational temperature:	-20°C to +55°C
WEIGHT AND DIMENSIONS	
Weight:	≤32kg
Diameter payload[3]:	330mm
Height payload[3]:	521mm
POWER REQUIREMENTS	
Voltage:	24 to 36VDC
Max. Consumption:	330W

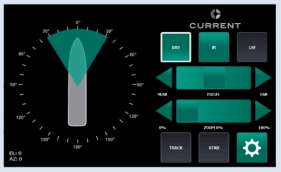
OTHER OPTIONS AND ACCESSORIES

Other sensors: Contact us with your specific requirements.

[1] theoretical calculation using Johnson's criteria & not accounting for atmospheric conditions/ [2] resolved by 2 axis positioning / [3] Larger movement space required

CONTROL SOLUTIONS

1. Video GUI



2. Control GUI

3. Compact Controller

4. Protocol for interface to Command & Control System

2-Button Joystick

Rugged Rigid Grip

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