



# VECTOR-20

Stabilized Maritime Pan-Tilt System



General Dynamics Ordnance and Tactical Systems' Vector-20 is a rugged, aerodynamic precision pan-tilt system able to deliver stable, precise imagery in rough seas and at high speeds.

Designed to handle the intense jostling and vibration in marine environments as required by special operations forces, the U.S. Coast Guard, harbor patrol, law enforcement officials, and commercial and private mariners. Able to accommodate a wide variety of EO/IR sensors, the Vector-20 delivers an affordable, versatile and stabilized motion control solution.

The Vector-20 leverages our deep expertise in motion control systems, from inertial gyro-stabilization to high-torque motors and precision resolvers. The Vector-20 provides unmatched control and accuracy with zero backlash and lower total cost of ownership. With an integrated slip ring and built-in control electronics, the system provides precise, smooth motion at all speeds. The system is easily integrated onto existing platforms.

General Dynamics Ordnance and Tactical Systems designs and manufactures a full portfolio of high-performance camera

systems and components that provide our customers the clarity, accuracy and reliability to successfully complete their mission. Leveraging our custom motor and resolver technologies, we design and manufacture maintenance-free, precision pan-tilt systems.

## Vector-20 Features:

- **Aerodynamic housing supports wide range of cameras and/or payloads, up to 20 pounds (9 kg)**
- **Ruggedized, sealed and marinated to ensure performance in harsh marine environments and winds up to 100 knots**
- **Maintains line of sight independent of the boat's motion**
- **Line of sight can be controlled to turn with the boat while maintaining inertial-stabilization**
- **Direct drive technology provides maintenance-free operation with zero backlash**
- **Compatible with General Dynamics Ordnance and Tactical Systems' thermal imagers and other available sensors**

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## Pan-Tilt Performance

Payload	4-20 lbs (1.8 - 9 kg)
Pan Speed	0.01 to 60°/sec
Pan Angle	360° continuous
Tilt Speed	0.01 to 60°/sec
Tilt Angle	-90° to +60°
Stabilization	<2 mrad RMS
Position Accuracy	±0.1°
Position Repeatability	±0.02°
Resolution	0.005°
Duty Cycle	100% in each axis
Continuous Torque	450 oz-in @ 24 VDC
Backlash	None

## Communications

Connector	Single Mil-Spec grade
Signals	2x Video, 4x spare, Power and Control
Control Interface	RS-232
Control Protocol	General Dynamics Ordnance and Tactical Systems 9 channel slip ring

## Power Requirements

Operating Voltage	18-32 VDC
Peak Current	11 Amps

## Environmental

Environmentally Sealed	Meets IP67 standard
Wind	100 knots (Operational), 125 knots (Survival)
Vibration	Meets IEC 60945 standard
Finish	Sky White Powder coat with Epoxy Primer
Operating Temperature	-40°C to +70°C (-40°F to +158°F)

## Weight and Dimensions

Weight	26 lbs (11.8 kg)
Dimensions	17" H x 10.5" W x 8.4" D (43.1cm H x 26.7cm W x 21.3cm D)

## Configuration Options

Finish	Other colors available upon request
Payload Housing Covers	Customizable per user specifications
Cable	Customizable per user specifications

**GENERAL DYNAMICS**  
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