



SEG12 – Multi Channel (EO-LWIR-LRF) Stabilized Gimbal System

Ultra Compact, Low Cost of Ownership, Multi Sensor Gimbal for,
Unmanned Ground Vehicles, EOIR Defense & Surveillance



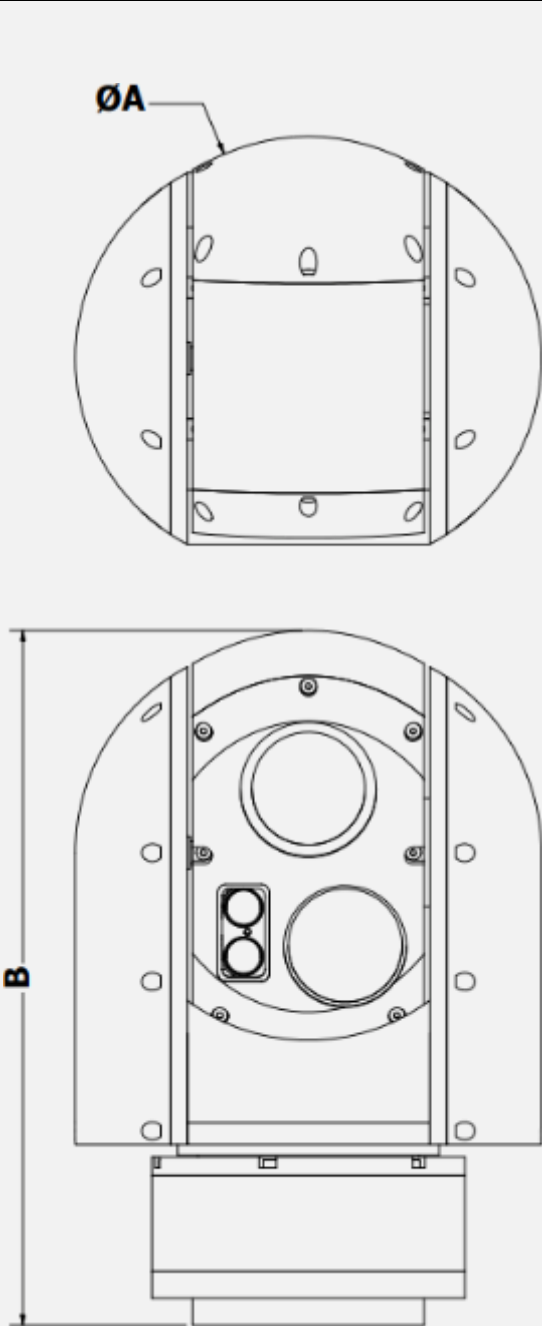
Distinctive Features

- ❖ **Advanced Digital Image Blending:** The gimbal offers full digital image blending, seamlessly combining thermal and color displays within a single video channel downlink. This innovative feature enhances situational awareness by providing comprehensive visual information in one view.
- ❖ **Pinpoint-Precise Motor Control:** Equipped with true servo drive technology utilizing brushless motors and high-resolution encoders, the gimbal achieves remarkable motor control accuracy with precision of $\pm 0.01^\circ$. This level of control ensures accurate and steady pointing of the gimbal.
- ❖ **Triple Channel Simultaneous Functionality:** The gimbal allows simultaneous data acquisition and command through its triple channel capabilities, encompassing EO (electro-optical), LWIR (long-wave infrared), and LRF (laser rangefinder) channels.

Main Features

- ❖ Simultaneous data acquisition and command through triple channel (EO, LWIR, LRF)
- ❖ Uncooled thermal technology enables long-term operation with a high MTBF and low cost of ownership.
- ❖ Sharp and clear image with 1080p full HD EO - 30x optical zoom and 640x512 LWIR thermal sensors

Configuration Breakdown	Sensors – <u>E</u> lectromechanical – <u>G</u> imbal – 10 (Product Class) – Thermal Imager (LWIR-640x480-17μ) – EO Camera (1080p – 30X) – Laser Range Finder – Customization Codes
Part Number	SEG12-L0617-E30-L05
Available Customizations	Laser Range Finder, Communication Protocol, Output Speed, FOV, Video Output Format, Mechanical Interfaces
Combinable Sub-Platforms	MES01 – Ultra Compact Electromechanical Mast MES02 – Compact Locked Electromechanical Mast MES10 – Locked Electromechanical Mast



INVENTRA
SURVEILLANCE SYSTEMS

Parameters / Configurations			SEG12-L0617-E30-L05
PERFORMANCE PARAMETERS	Pan/Tilt Axis Speed	°/s	180°/s
	Pan/Tilt Axis Range	°	Pan: 360° Continuous / Tilt: ±45°
	Communication to the Unit	-	RS-485
	Operating Voltage	V	20-32
	Power Consumption (Max)	W	150
	Weight	kg	4.6
	Video Output	-	HD-SDI, Ethernet
	Diameter (ØA)	mm	160
	Height (B)	mm	256
LRF	LRF Ranging Scope	m	5-4500 m
	LRF Wavelength	µm	1.5 µm
THERMAL IMAGER	Wave Length	µm	Long Wave
	Detector Pixels	-	640 X 512
	Pixel Size	µm	17µm
	Focusing	-	Athermalized
	Emissivity Correction	-	0.01 ~ 1 (Adjustable)
	NETD	mK	≤50mK @25°C
	MRTD	mK	≤500mK
	HFOV	°	17.7°
	Automatic Non-Uniformity Correction Function	-	Yes
	Digital Zoom	-	2X 3X 4X
TRACKER	Data Refresh Rate	Hz	25 Hz
	Output Lag	ms	<100 ms
	Stabilization	-	Two Axis IMU and Encoder Based Dual Loop Stabilization
	Target Size	pixels	16x16 ~ 128*128

EO CAMERA	Image Sensor	-	1/2.8-type Exmor R CMOS
	Resolution	-	1920 X 1080
	Minimum Illumination	High Sens.	0.01 lx (F1.6, AGC On, 1/30s)
		Normal Mode	0.1 lx (F1.6, AGC On, 1/30s)
	S/N Ratio	dB	> 50 dB
	Gain	dB	0 dB - 50.0dB
	Shutter Speed	1/s	1/1s - 1/10,000s, 22 Steps
	Exposure Control	-	Automatic
	Aperture Control	-	16 Steps
	Lens	-	30x Optical Zoom f = 4.3mm (Wide) - 129.0mm (Tele) f1.6 - f4.7"
	Digital Zoom	-	12x (360x With Optical Zoom)
	Focusing System	-	Automatic
	Horizontal Viewing Angle (H-FOV)	°	63.7° (Wide) - 2.3° (Tele)
	Minimum Object Distance	mm	10mm (Wide) - 1200mm (Tele)
ENVIRONMENTAL QUALIFICATIONS	Temperature	°C	MIL-STD-810G, Method 502.5 Procedure II – Operational, -32°C MIL-STD-810G, Method 501.5 Procedure II – Operational, +60°C MIL-STD-810G, Method 501.5 Procedure I – Storage; +70°C MIL-STD-810G, Method 502.5 Procedure I – Storage; -40°C
	Vibration	-	MIL-STD-810G, Method 514.6 Procedure I Category 20, Figure 514.6C-3
	Shock	-	MIL-STD-810G, Method 516.6 Procedure I Functional Shock, 20g 11ms
	Rain	-	MIL-STD-810G, Method 506.5 Procedure I – Rain



Barkan – Autonomous Unmanned Ground Vehicle Developed by Havelsan