

MANTIS-BB Multispectral Thermal Imaging Camera

KEY FEATURES

Lightpath Technologies Mantis and EdgeIR capable broadband thermal cameras, purpose-built for space, scientific, industrial, and security applications. Cutting-edge devices represent significant leaps in technological advancement, outperforming current technology by several generations and positioning integrators at the forefront of Smart infrared imaging. Harness LightPath's extreme-performance BD6 infrared optical material and integrating a 26 TOPS (Tera Operations Per Second) AI accelerator through EdgeIR technology. Users can directly upload and run their preferred trained AI models at the camera level for ultra-low-latency efficient edge processing over wired or wireless networks.

Features a high-definition uncooled microbolometer detector array, offering lowest in class SWaP (Size, Weight, and Power) design for Broadband infrared imaging. Covering both MWIR and LWIR (2um - 12um) and capture multiple modalities in one device. Supports Unicast, Multicast and Broadcast in UDP, RTP, RTSP, and provides video and audio capture, encoding, decoding, transcoding, and display, video raw-data pre-processing and ONVIF support including PTZ control over RS485.



Optical Design Summary

Parameter	Notes	Design Value	Unit
Uncooled VOx Microbolometer	Multispectral (MWIR-LWIR)	640 x 480	17μm
EFL	Magnification-based	19	mm
F/#	Aperture-based	1.1	
Detector Resolution	Horizontal x Vertical / Pitch	640x480 / 17μm	Pixels
Field of View	Vertical	24.3	Deg
	Horizontal	32	Deg
	Diagonal (corner)	39.3	Deg
Lens MTF -Avg Sag/Tan at Nyquist (29.4 lp/mm) (2-12μm waveband)	Diffraction Limited MTF (Ref. Only)	68	%
	MTF at On-Axis Field	65	%
	MTF at VFOV	49	%
	MTF at HFOV	42	%
	MTF at DFOV	50	%
Lens Distortion	Max over Full Field (corner)	2	%
Relative Illumination	At HFOV	83	%
	At Corner Field	77	%
Size	Camera (l x w x h)	~49 x 64 x 52	mm
Weight		< 200	g
Power Consumption		1.1	W



Specifications

Implement your Trained AI Model on the Edge
For customers with trained AI models, The Mantis with EdgeIR make deployment seamless. You can implement your neural networks directly within the hardware using standard frameworks such as TensorFlow, Keras, PyTorch, and ONNX. This compatibility ensures a smooth integration process, allowing you to leverage the full potential of your AI models at the edge, optimizing performance for advanced applications like safety, security, aerospace, object tracking, industrial monitoring, and smart city projects.



Imaging Core

Detector	Broadband Uncooled Microbolometer (2-12μm)
Format	640x480 / 17μm
NEDT	<35mk

Lenses

EFL	19mm, 75mm, **Custom
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System

	MANTIS	MANTIS-Digi	MANTIS-Ai
Frame Rate	9 FPS*, 30 FPS		
SOC	N/A	NXP i.MX 8M Plus	
Memory	N/A	6GB LPDDR4 RAM 32GB EMMC Flash	
Ai Accelerator	N/A	N/A	Hailo-8
Webserver	N/A	Yes	Yes
Digital Video Interface	CameraLink	GigE (**Optional CameraLink, USB3, HDMI)	
Network Interface	N/A	GigE	
Compression	N/A	H.264 H.265	
Serial Interface	N/A	*RS232 *RS485	
Analog Video Interface	NTSC/PAL	N/A	
Audio Input	N/A	**Optional 3.5mm	
Onboard Storage	N/A	**Optional Micro-SD up to 1TB	
Controls	USB Communication, GUI Software		
Power	1.1 Watt, 5-18 V DC	< 7 Watt, 5-18 V DC	

*9ghz versions for available for export

**Contact LightPath Technologies