Document Information

Title: Mantis-BB Camera User Guide (CL + Analog, 30 Hz, No Filter, 19mm lens, Kit 7300010-101)	
Document Number: 17002000	**Revision**: B
Effective Date: 3/12/2026	
Process Owner: Engineering	

Document History

Revision	Effective Date	ECN#	Change Description
–	03/18/2025	CM-481	Formal Release
A	3/21/2025	CM-522	Document name change. Added camera pointed to high light source warning. Added link to Thermal GUI.
B	3/12/2026	CM-636	Added ref document to include 1700210 LightPath SDK. Updated graphics to match the new GUI release.

Export Controlled Document

Equipment described herein is subject to US export regulations and may require a license prior to export. Diversion contrary to US law is prohibited. Section 2751 of Title 22, United States Code, or the Export Control Reform Act of 2018, Chapter 58, Sections 4801-4852 of Title 50.

ESD Notice

This device and components are **Electrostatic Discharge Sensitive** (ESD). Provisions of the ESD Control Program must be applied when handling or storing this product. All work must be performed at an ESD-safe workstation. Wrist straps and/or heel straps must be worn when following this procedure.

Warning

Never point the camera at any high-energy source, such as heating elements and the sun. This will damage the FPA.

Hi/Lo Temps – Exposure to extreme temperatures may cause injury. Use caution.

Lens Abrasion – A lens surface is extremely sensitive to contamination and abrasion. Care must be taken to prevent particles on the lens and prevent damage to the surface.

Images

Images in this document are for illustration purposes only and may change without notice.

Notice

1.   Purpose

This document addresses the Mantis-BB, multispectral camera contents, setup, and Thermal GUI download.

2.   Scope

Instructions in this document is for users familiar with thermal imaging. Read this document in its entirety before setting up and operating this unit. **Do Not** point the camera at any high-energy source, such as heating elements or the sun. This will damage the FPA.

3.   Reference Documents

17002010 LightPath Sensor SDK

ICD 7300010-01-INT

4.   What is in the Box?

Kit Contents		
Part Number	**Description**	**Image**
7300010-01	MANTIS Multispectral Camera	
LP-P-35022	Power Unit	
6200505	RCA Cable 6 ft	
6200504	USB A to USB Mini Cable	

5.   Specifications

5.1.   Nominal Design Summary

Parameter	Notes	Design Value	Unit
Waveband	Multispectral (MWIR-LWIR)	2-12	µm
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 %	2	%
Relative Illumination At HFOV	At HFOV	83	%
	At Corner Field	77	
Size	Camera (l x w x h)	~49 x 64 x 52	mm

5.2.   Imaging Core

Imaging Core	
Detector	Broadband Uncooled Microbolometer (2-12µm)
Format	640x480 / 17µm
NEDT	<35mk
Lenses	
EFL	EFL 19mm, 75mm, **Custom

5.3.   System

	Mantis	Mantis-DiGi	Mantis-Ai
Frame Rate	9 fps*, 30 fps, 60 fps		
SOC	N/A	NXP i.MX 8M Plus	
Memory	N/A	6GB LPDD4 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	

	Mantis	Mantis-DiGi	Mantis-Ai
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	

*Optional versions available for export. **Contact LightPath.

6. Camera Setup

NEVER point the camera at any high-energy source, such as heating elements or the sun. This will damage the FPA.

6.1. Set Focus Lock

1. Un-thread until loose to allow lens focus.
2. Thread to lock the lens in place.

Figure 1: Set Focus Lock

6.2. Electrical Interface

6.2.1. Options:

1. USB A to USB Mini connection (cable included).
2. Connect the Camera to Frame Grabber at the CameraLink® connector (cable not included).
3. RCA connector for analog video (cable included).
4. Power not needed when using USB cable (cable included).

Figure 2: Electrical Interface Options

6.3. Mechanical Interface

6.3.1. See ICD 7300010-01-INT for dimensions and details.

- 1/4-20 Threaded Hole
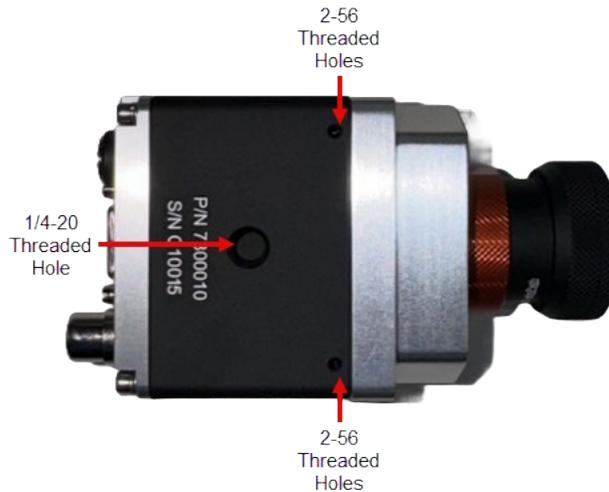- 2-56 Threaded Holes

6.3.2. Lens Size

- 19MM
- 75MM

Figure 3: Mechanical Interface

7. Thermal GUI

7.1. Download and Install Thermal GUI

7.1.1. Download, extract, and install the Thermal GUI. Contact your LightPath representative if you need assistance.
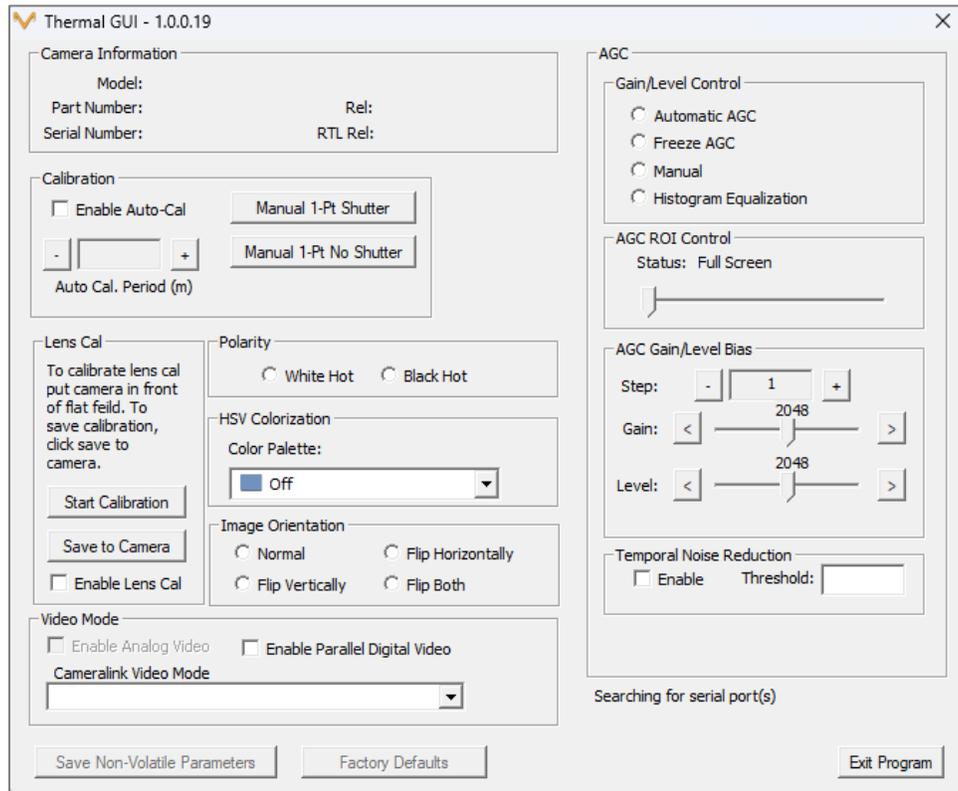
Figure 4: Thermal GUI

7.2.   Thermal GUI User's Guide

7.2.1.   Click the upper-left icon to access the help menu.
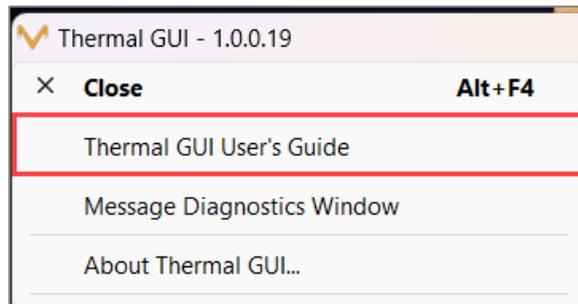
7.2.2.   Select Thermal GUI User's Guide.

Figure 5: Help Menu

8. MANTIS Camera Typical Analog Setup

8.1. Grabber Recommendations

8.1.1. Frame Grabber

- iPORT CL-U3 Development Kit 903-0011
- Includes Cable from Frame Grabber to Computer USB

8.1.2. Cables

- Centronics 26 pos Male to Male Assembly 2m (6.56)
- 3M Part Number 1SD26-3120-00C-200
- Digikey Part Number 3M155828-ND
- Cable from Camera to Frame Grabber

Figure 6: Grabber Connection