



30 MP, 360° SPHERICAL CAMERA IMAGING SYSTEM

# FLIR LADYBUG 5+ USB 3.1 Gen 1

## P/N LD5P-U3-51S5

The Ladybug5+ offers the highest quality in spherical 360° imaging and accuracy. It is able to acquire an impressive 8k30 or 4k60 of content. With its patented calibration and superior global shutter sensors, the Ladybug5+ has an accuracy level of 2 mm at 10 m. The Ladybug SDK provides a wide range of functionality, allowing users to record, process, and export spherical content with ease.

www.flir.com/spherical-vision



#### SUPERIOR IMAGE QUALITY

With it's Sony Pregius global shutter CMOS sensors, the Ladybug5+ delivers outstanding image quality across a wide range of lighting conditions There is no solar smearing in outdoor images, excellent color response, low noise, and a high dynamic range (approx. 70.6dB dynamic range or 12 stops) indoors and out. Fast f/2.5 lenses enable excellent low-light image quality.



ENHANCED IMAGE QUALITY WITH POST PROCESSING

The workflow starts with Ladybug5+ capturing, compressing, and transmitting full bit depth 12-bit images. Users then use LadybugCapPro to apply white balance, gamma, and other image processing functions for maximum image quality.



# FLEXIBILITY WITH NON DESTRUCTIVE POST-PROCESSING

The capture and post workflow model allows users to maintain flexibility by being able to return to the original content and re-apply post processing steps as desired.

Megapixels 30 FPS (JPEG Compressed) Megapixels 30 MP (5 MP x 6 sensors) Sensor Sony IMX264. CMOS, 2/3" Readout Method Global shutter Dixel Size 3.45 µm AD Converter 12-bit Data Formats Raw8, Raw12, Raw16 uncompressed, and JPEG compressed Precision Timestamps RS232 GPS NMEA string and PPS over GPIO Shutter, gain, white balance, gamma and JPEG compression, programmable via software Global shutter; Auto/manual/one-push/extended shutter modes 0.02 ms to 2 seconds (extended shutter modes 0.02 ms to 2 seconds (extended shutter) Shutter Global shutter; Auto/manual/one-push/extended shutter) Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0-18 dB Samma 0.50 to 4.00 Mitte Balance Presets/automatic/manual High Dynamic Range Cycle 4 gain and exposure presets Digital Interface USB3 with locking screws for secure connection Transfer Rates 5 Gbit/s Stendard, skip frames, overlapped, and multi shot trigger modes Memory Channels 12-pin GPIO connector for external trigger input, strobe output, power, and PPS External Trigger Modes Memory Channels 2 memory channels for custom camera settings Plash Memory 1 MB Case Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions 197 mm diameter, 160 mm height (with lens hoods) Machine Vision Standard Camera Control Via Ladybug SDK, CSRs, or third party software Camera Updates Ditics 6 high quality 4.4 mm focal length lenses Field of View 90% of full sphere Calibrated from 2 m to infinity Focus Distance Calibrated from 2 m to infinity Focus Distance Calibrated from 2 m to infinity Focus Distance Cellibrated From 2 m to infinity Formperature Operating: 20° to 50°C; Storage: 20° to 60°C Durndiity Operating: 20° to 50°C; Storage: 20° to 95% (no condensation) Dipolations Compliance CE, FCC, RoHS Windows or Linux 64-bit for capture and recording only with 8 GB RAM	SPECS	LD5P-U3-51S5
Megapixels 30 MP (5 MP x 6 sensors)  Sensor Sony IMX264. CMOS, 2/3"  Readout Method Global shutter  Pixel Size 3.45 µm  AUD Converter 12-bit  Data Formats Raw8, Raw12, Raw16 uncompressed, and JPEG compressed  Precision Timestamps RS232 GPS NMEA string and PPS over GPIO  Shutter, gain, white balance, gamma and JPEG compression, programmable via software  Global shutter; Auto/manual/one-push/extended shutter modes 0.02 ms to 2 seconds (extended shutter)  Pixel Spatial Accuracy Average accuracy of 2 mm at 10 m  Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB  Gamma 0.55 to 4.00  White Balance Presets/automatic/manual  Cycle 4 gain and exposure presets  Digital Interface USB3 with locking screws for secure connection  Transfer Rates 5 Gbit/s  GPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS  External Trigger Modes Standard, skip frames, overlapped, and multi shot trigger modes  Memory Channels 2 memory channels for custom camera settings  Clash Memory 1 MB  Case Machined aluminum housing, anodized red or black; single unit, water resistant  Dimensions 197 mm diameter, 160 mm height (with lens hoods)  Mass 3.0 kg  Power Consumption 12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard IIDC V1.32  Camera Control via Ladybug SDK, CSRs, or third party software  Camera Updates In-field firmware updates  Optics 6 high quality 4.4 mm focal length lenses  Field of View 90% of full sphere  Calibrated from 2 m to infinity  Foreigner autore Calibrated from 2 m to infinity  Compliance Calibrated from 2 m to infinity  Compliance CE, FCC, RoHS  Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Resolution	2448 x 2048
Sensor Sony IMX264. CMOS, 2/3* Readout Method Global shutter Pixel Size 3.45 µm  AUD Converter Data Formats Raw8, Raw12, Raw16 uncompressed, and JPEG compressed Precision Timestamps RS232 GPS NMEA string and PPS over GPIO  Shutter, gain, white balance, gamma and JPEG compression, programmable via software  Global shutter; Auto/manual/one-push/extended shutter modes O.02 ms to 2 seconds (extended shutter)  Pixel Spatial Accuracy Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats Gamma O.50 to 4.00  Mhite Balance Presets/automatic/manual High Dynamic Range Cycle 4 gain and exposure presets Digital Interface USB3 with locking screws for secure connection Fransfer Rates 5 Gbit/s  SPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS External Trigger Modes Memory Channels 2 memory channels for custom camera settings Hash Memory 1 MB Case Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions 197 mm diameter, f60 mm height (with lens hoods) Mass Power Consumption 12-24 V, 13 W via GPIO (external power required) Machine Vision Standard IIDC v1.32 Camera Control via Ladybug SDK, CSRs, or third party software Dimensions 19-field firmware updates Diptics 6 high quality 4.4 mm focal length lenses Diptics 6 high quality 4.4 mm focal length lenses Diptics 6 high quality 4.4 mm focal length lenses Diptics 6 high quality 4.2 mm to infinity Femperature Operating: 20° to 50°C; Storage: -30° to 60°C Humidity Operating: 20° to 80% (no condensation); Storage: 20 to 95% (no condensation) Diperating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Frame Rate	30 FPS (JPEG Compressed)
Readout Method Pixel Size 3.45 µm A/D Converter 12-bit A/D Converter Raw8, Raw12, Raw16 uncompressed, and JPEG compressed Precision Timestamps RS232 GPS NMEA string and PPS over GPIO Shutter, gain, white balance, gamma and JPEG compression, programmable via software Global shutter; Auto/manual/one-push/extended shutter modes 0.02 ms to 2 seconds (extended shutter) Average accuracy of 2 mm at 10 m Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB Gamma 0.50 to 4.00 White Balance Presets/automatic/manual High Dynamic Range Oigital Interface USB3 with locking screws for secure connection Fransfer Rates Spilo 12-pin GPIO connector for external trigger input, strobe output, power, and PPS External Trigger Modes Memory Channels Pash Memory 1 MB Case Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions 197 mm diameter, 160 mm height (with lens hoods) Mass Power Consumption Machine Vision Standard Camera Control Via Ladybug SDK, CSRs, or third party software Camera Updates Direction Camera Updates Direction Camera Updates Camera Updates Camera Updates Camera Updates Camera Control Camera Updates Calibrated from 2 m to infinity Caperating System Caper	Megapixels	30 MP (5 MP x 6 sensors)
Pixel Size A/D Converter Data Formats Raw8, Raw12, Raw16 uncompressed, and JPEG compressed Precision Timestamps RS232 GPS NMEA string and PPS over GPIO Shutter, gain, white balance, gamma and JPEG compression, programmable via software Global shutter; Auto/manual/one-push/extended shutter modes 0.02 ms to 2 seconds (extended shutter) Dixel Spatial Accuracy Average accuracy of 2 mm at 10 m Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB  Gamma Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB  Gamma 0 .550 to 4.00  White Balance Presets/automatic/manual High Dynamic Range Cycle 4 gain and exposure presets Digital Interface USB3 with locking screws for secure connection Fransfer Rates Fransfer Rates Standard, skip frames, overlapped, and multi shot trigger modes Memory Channels 2 memory channels for custom camera settings Habh Memory 1 MB  Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions 197 mm diameter, 160 mm height (with lens hoods) Mass 3 .0 kg  Power Consumption 12-24 V, 13 W via GPIO (external power required) Machine Vision Standard IIDC v1.32 Camera Updates Diptics 6 high quality 4.4 mm focal length lenses Field of View 90% of full sphere Calibrated from 2 m to infinity Femperature Operating -20° to 50°C; Storage: -30° to 60°C Humidity Operating: 20 to 80% (no condensation); Storage: -30° to 60°C Humidity Operating: 20 to 80% (no condensation); Storage: -30° to 60°C Deperating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Sensor	Sony IMX264. CMOS, 2/3"
A/D Converter Data Formats Pack Formats Data Formats Raw8, Raw12, Raw16 uncompressed, and JPEG compressed Precision Timestamps RS232 GPS NMEA string and PPS over GPIO Shutter, gain, white balance, gamma and JPEG compression, programmable via software Shutter Global shutter; Auto/manual/one-push/extended shutter modes 0.02 ms to 2 seconds lecktended shutter modes 0.03 ms to 2 seconds lecktended shutter modes 0.04 ms to 2 seconds lecktended shutter modes 0.05 to 4.00  Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB  Gamma 0.50 to 4.00  White Balance Presets/automatic/manual 0.50 to 4.00  White Balance Presets/automatic/manual 0.50 to 4.00  White Balance Presets/automatic/manual 0.50 to 4.00  White Balance USB3 with locking screws for secure connection 0.50 to 4.00  White Balance 0.50 to 4.00  Salance 0.50 to 4.00  Sal	Readout Method	Global shutter
Precision Timestamps RS232 GPS NMEA string and PPS over GPIO  Shutter, gain, white balance, gamma and JPEG compressed, processing Shutter, gain, white balance, gamma and JPEG compression, programmable via software  Global shutter; Auto/manual/one-push/extended shutter modes 0.02 ms to 2 seconds (extended shutter)  Average accuracy of 2 mm at 10 m  Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB  Gamma Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB  Gamma O.50 to 4.00  White Balance Presets/automatic/manual  High Dynamic Range Cycle 4 gain and exposure presets  Digital Interface USB3 with locking screws for secure connection  Transfer Rates 5 Gbit/s  GPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS  External Trigger Modes Standard, skip frames, overlapped, and multi shot trigger modes  Memory Channels 2 memory channels for custom camera settings  Flash Memory I MB  Case Machined aluminum housing, anodized red or black; single unit, water resistant  Dimensions 197 mm diameter, 160 mm height (with lens hoods)  Mass 3.0 kg  Power Consumption 12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard  LIDC V1.32  Camera Control Via Ladybug SDK, CSRs, or third party software  Camera Control Via Ladybug SDK, CSRs, or third party software  Camera Updates Diptics 6 high quality 4.4 mm focal length lenses  Field of View 90% of full sphere  Columnation  Compliance Calibrated from 2 m to infinity  Femperature Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance CE, FCC, RoHS  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Pixel Size	3.45 μm
Precision Timestamps Mage Processing Shutter, gain, white balance, gamma and JPEG compression, programmable via software Shutter Global shutter; Auto/manual/one-push/extended shutter modes 0.02 ms to 2 seconds (extended shutter) Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB Gamma Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB Gamma 0.50 to 4.00 White Balance Presets/automatic/manual High Dynamic Range Cycle 4 gain and exposure presets Digital Interface USB3 with locking screws for secure connection Transfer Rates 5 Gbit/s GPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS External Trigger Modes Standard, skip frames, overlapped, and multi shot trigger modes Memory Channels Pash Memory 1 MB Case Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions 197 mm diameter, 160 mm height (with lens hoods) Mass 3.0 kg Power Consumption Machine Vision Standard Camera Updates Difficial Grid View 90% of full sphere Camera Updates Diptics 6 high quality 4.4 mm focal length lenses Diptics 6 high quality 4.4 mm focal length lenses Diptics 6 high quality 4.4 mm focal length lenses Diptics Cous Distance -200 cm. Objects have an acceptable sharpness from -60 cm to infinity Focus Distance -200 cm. Objects have an acceptable sharpness from -60 cm to infinity Doperating: -20° to 50°C; Storage: -30° to 60°C Humidity Operating: 20° to 50°C; Storage: -30° to 60°C Doperating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	A/D Converter	12-bit
Shutter, gain, white balance, gamma and JPEG compression, programmable via software  Global shutter; Auto/manual/one-push/extended shutter modes 0.02 ms to 2 seconds (extended shutter)  Pixel Spatial Accuracy Average accuracy of 2 mm at 10 m  Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB  Gamma 0.50 to 4.00  White Balance Presets/automatic/manual  digh Dynamic Range Cycle 4 gain and exposure presets  Digital Interface USB3 with locking screws for secure connection  Transfer Rates 5 Gbit/s  GPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS  External Trigger Modes Memory Channels 2 memory channels for custom camera settings  Flash Memory 1 MB  Case Machined aluminum housing, anodized red or black; single unit, water resistant  Dimensions 197 mm diameter, 160 mm height (with lens hoods)  Mass 3.0 kg  Power Consumption 12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard  Camera Updates Drices 6 high quality 4.4 mm focal length lenses  Fled of View 90% of full sphere  Camera Updates Calibrated from 2 m to infinity  Flocus Distance -200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Cocus Distance Operating: 20 to 50°C; Storage: 30° to 60°C  Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance CE, FCC, RoHS	Data Formats	Raw8, Raw12, Raw16 uncompressed, and JPEG compressed
Shutter Global shutter; Auto/manual/lone-push/extended shutter modes 0.02 ms to 2 seconds (extended shutter)  Pixel Spatial Accuracy Average accuracy of 2 mm at 10 m  Gain Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB  Gamma 0.50 to 4.00  White Balance Presets/automatic/manual High Dynamic Range Cycle 4 gain and exposure presets Digital Interface USB3 with locking screws for secure connection  Fransfer Rates 5 Gbit/s  GPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS  External Trigger Modes Standard, skip frames, overlapped, and multi shot trigger modes  Memory Channels 2 memory channels for custom camera settings Flash Memory 1 MB  Case Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions 197 mm diameter, 160 mm height (with lens hoods)  Mass 3.0 kg  Power Consumption 12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard IIDC v1.32  Camera Control via Ladybug SDK, CSRs, or third party software  Camera Updates In-field firmware updates Optics 6 high quality 4.4 mm focal length lenses Field of View 90% of full sphere  Sopherical Distance -200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Focus Distance -200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Compliance CE, FCC, RoHS  Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Precision Timestamps	RS232 GPS NMEA string and PPS over GPIO
Average accuracy of 2 mm at 10 m  Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB  Gamma 0.50 to 4.00  White Balance High Dynamic Range Cycle 4 gain and exposure presets Digital Interface USB3 with locking screws for secure connection  Transfer Rates Fates Fateral Trigger Modes Wemory Channels Hash Memory Amachined aluminum housing, anodized red or black; single unit, water resistant Dimensions Fase Power Consumption Machine Vision Standard Camera Control Camera Updates Diptics Field of View Spherical Distance Cale Transfer And Swip frames, overlapped, and multi shot trigger modes Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions In-field firmware updates Diptics Ghigh quality 4.4 mm focal length lenses Field of View Spherical Distance Calibrated from 2 m to infinity Cous Distance Operating: 20° to 50°C; Storage: -30° to 60°C  Humidity Operating: 20° to 80% (no condensation); Storage: 20 to 95% (no condensation) Compliance CE, FCC, RoHS Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Image Processing	
Auto/manual/one-push modes for 8-bit formats; manual mode for 12-bit formats 0 - 18 dB  Gamma  0.50 to 4.00  White Balance Presets/automatic/manual  digh Dynamic Range Cycle 4 gain and exposure presets  Digital Interface USB3 with locking screws for secure connection  Fransfer Rates GPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS  External Trigger Modes Standard, skip frames, overlapped, and multi shot trigger modes  Memory Channels 2 memory channels for custom camera settings  Flash Memory 1 MB  Case Machined aluminum housing, anodized red or black; single unit, water resistant  Dimensions 197 mm diameter, 160 mm height (with lens hoods)  Mass 3.0 kg  Power Consumption 12-24 V, 13 W via GPIO (external power required)  IIDC V1.32  Camera Control Via Ladybug SDK, CSRs, or third party software  Camera Updates In-field firmware updates  Diptics 6 high quality 4.4 mm focal length lenses  Field of View 90% of full sphere  Spherical Distance Calibrated from 2 m to infinity  Focus Distance Calibrated from 2 m to infinity  Focus Distance Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance CE, FCC, RoHS  Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Shutter	·
Gamma 0.50 to 4.00  White Balance Presets/automatic/manual  High Dynamic Range Cycle 4 gain and exposure presets  Digital Interface USB3 with locking screws for secure connection  Transfer Rates 5 Gbit/s  GPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS  External Trigger Modes Standard, skip frames, overlapped, and multi shot trigger modes  Memory Channels 2 memory channels for custom camera settings  Flash Memory  I MB  Case Machined aluminum housing, anodized red or black; single unit, water resistant  Dimensions 197 mm diameter, 160 mm height (with lens hoods)  Mass 3.0 kg  Power Consumption 12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard IIDC v1.32  Camera Control via Ladybug SDK, CSRs, or third party software  Camera Updates In-field firmware updates  Diptics 6 high quality 4.4 mm focal length lenses  Field of View 90% of full sphere  Spherical Distance Calibrated from 2 m to infinity  Focus Distance — 200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Temperature Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance CE, FCC, RoHS  Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Pixel Spatial Accuracy	Average accuracy of 2 mm at 10 m
Mite Balance Presets/automatic/manual High Dynamic Range Cycle 4 gain and exposure presets Digital Interface USB3 with locking screws for secure connection Fransfer Rates 5 Gbit/s GPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS External Trigger Modes Standard, skip frames, overlapped, and multi shot trigger modes Memory Channels 2 memory channels for custom camera settings Flash Memory 1 MB Case Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions 197 mm diameter, 160 mm height (with lens hoods) Mass 3.0 kg Power Consumption 12-24 V, 13 W via GPIO (external power required) Machine Vision Standard IIDC v1.32 Camera Control via Ladybug SDK, CSRs, or third party software Camera Updates In-field firmware updates Optics 6 high quality 4.4 mm focal length lenses Field of View 90% of full sphere Spherical Distance Calibrated from 2 m to infinity Focus Distance —200 cm. Objects have an acceptable sharpness from ~60 cm to infinity Femperature Operating: -20° to 50°C; Storage: -30° to 60°C Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation) Compliance CE, FCC, RoHS Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Gain	
Cycle 4 gain and exposure presets  Digital Interface  USB3 with locking screws for secure connection  Transfer Rates  5 Gbit/s  GPIO  12-pin GPIO connector for external trigger input, strobe output, power, and PPS  External Trigger Modes  Standard, skip frames, overlapped, and multi shot trigger modes  Memory Channels  1 MB  Case  Machined aluminum housing, anodized red or black; single unit, water resistant  Dimensions  197 mm diameter, 160 mm height (with lens hoods)  Mass  3.0 kg  Power Consumption  12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard  Camera Control  Via Ladybug SDK, CSRs, or third party software  Camera Updates  Ditics  6 high quality 4.4 mm focal length lenses  Field of View  90% of full sphere  Spherical Distance  Calibrated from 2 m to infinity  Focus Distance  Canopliance  Cer, FCC, RoHS  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Gamma	0.50 to 4.00
Digital Interface USB3 with locking screws for secure connection Fransfer Rates 5 Gbit/s GPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS External Trigger Modes Standard, skip frames, overlapped, and multi shot trigger modes Memory Channels 2 memory channels for custom camera settings Flash Memory 1 MB Case Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions 197 mm diameter, 160 mm height (with lens hoods) Mass 3.0 kg Power Consumption 12-24 V, 13 W via GPIO (external power required) Machine Vision Standard Camera Control Via Ladybug SDK, CSRs, or third party software Camera Updates In-field firmware updates Optics 6 high quality 4.4 mm focal length lenses Field of View 90% of full sphere Calibrated from 2 m to infinity Focus Distance Calibrated from 2 m to infinity Focus Distance Operating: -20° to 50°C; Storage: -30° to 60°C Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation) Compliance CE, FCC, RoHS Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	White Balance	Presets/automatic/manual
Transfer Rates  5 Gbit/s  GPIO  12-pin GPIO connector for external trigger input, strobe output, power, and PPS External Trigger Modes  Standard, skip frames, overlapped, and multi shot trigger modes  Memory Channels  2 memory channels for custom camera settings  Flash Memory  1 MB  Case  Machined aluminum housing, anodized red or black; single unit, water resistant  Dimensions  197 mm diameter, 160 mm height (with lens hoods)  Mass  3.0 kg  Power Consumption  12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard  Camera Control  Via Ladybug SDK, CSRs, or third party software  Camera Updates  In-field firmware updates  Optics  6 high quality 4.4 mm focal length lenses  Field of View  90% of full sphere  Spherical Distance  Calibrated from 2 m to infinity  Focus Distance  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	High Dynamic Range	Cycle 4 gain and exposure presets
SPIO 12-pin GPIO connector for external trigger input, strobe output, power, and PPS External Trigger Modes Standard, skip frames, overlapped, and multi shot trigger modes Memory Channels 2 memory channels for custom camera settings   Flash Memory 1 MB   Case Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions 197 mm diameter, 160 mm height (with lens hoods)   Mass 3.0 kg   Power Consumption 12-24 V, 13 W via GPIO (external power required)   Machine Vision Standard   Camera Control Via Ladybug SDK, CSRs, or third party software   Camera Updates   In-field firmware updates   Camera Updates   Special of View 90% of full sphere   Spherical Distance   Calibrated from 2 m to infinity   Focus Distance   Calibrated from 2 m to infinity   Comperature   Operating: -20° to 50°C; Storage: -30° to 60°C   Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)   Compliance   CE, FCC, RoHS   Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Digital Interface	USB3 with locking screws for secure connection
Standard, skip frames, overlapped, and multi shot trigger modes  Memory Channels  2 memory channels for custom camera settings  1 MB  Case  Machined aluminum housing, anodized red or black; single unit, water resistant  Dimensions  197 mm diameter, 160 mm height (with lens hoods)  Mass  3.0 kg  Power Consumption  Machine Vision Standard  Camera Control  Via Ladybug SDK, CSRs, or third party software  Camera Updates  In-field firmware updates  Optics  6 high quality 4.4 mm focal length lenses  Field of View  90% of full sphere  Spherical Distance  Calibrated from 2 m to infinity  Focus Distance  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Transfer Rates	5 Gbit/s
Memory Channels  2 memory channels for custom camera settings  1 MB  Case  Machined aluminum housing, anodized red or black; single unit, water resistant  Dimensions  197 mm diameter, 160 mm height (with lens hoods)  Mass  3.0 kg  Power Consumption  12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard  IIDC v1.32  Camera Control  Via Ladybug SDK, CSRs, or third party software  Camera Updates  In-field firmware updates  Optics  6 high quality 4.4 mm focal length lenses  Field of View  90% of full sphere  Spherical Distance  Calibrated from 2 m to infinity  Focus Distance  Calibrated from 2 m to infinity  Focus Distance  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	GPIO	12-pin GPIO connector for external trigger input, strobe output, power, and PPS
Flash Memory  1 MB  Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions  197 mm diameter, 160 mm height (with lens hoods)  Mass  3.0 kg  Power Consumption  12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard  IIDC v1.32  Camera Control  via Ladybug SDK, CSRs, or third party software  Camera Updates  In-field firmware updates  Optics  6 high quality 4.4 mm focal length lenses  Field of View  90% of full sphere  Spherical Distance  Calibrated from 2 m to infinity  Focus Distance  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	External Trigger Modes	Standard, skip frames, overlapped, and multi shot trigger modes
Machined aluminum housing, anodized red or black; single unit, water resistant Dimensions  197 mm diameter, 160 mm height (with lens hoods)  Mass  3.0 kg Power Consumption  12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard  IIDC v1.32  Camera Control  via Ladybug SDK, CSRs, or third party software  Camera Updates  In-field firmware updates  Optics  6 high quality 4.4 mm focal length lenses  Field of View  90% of full sphere  Spherical Distance  Calibrated from 2 m to infinity  Focus Distance  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Memory Channels	2 memory channels for custom camera settings
Dimensions  197 mm diameter, 160 mm height (with lens hoods)  3.0 kg  Power Consumption  12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard  IIDC v1.32  Camera Control  via Ladybug SDK, CSRs, or third party software  Camera Updates  In-field firmware updates  Optics  6 high quality 4.4 mm focal length lenses  Field of View  90% of full sphere  Spherical Distance  Calibrated from 2 m to infinity  Focus Distance  ~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Temperature  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Flash Memory	1 MB
Mass 3.0 kg  Power Consumption 12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard IIDC v1.32  Camera Control via Ladybug SDK, CSRs, or third party software  Camera Updates In-field firmware updates  Optics 6 high quality 4.4 mm focal length lenses  Field of View 90% of full sphere  Spherical Distance Calibrated from 2 m to infinity  Focus Distance ~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Temperature Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance CE, FCC, RoHS  Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Case	Machined aluminum housing, anodized red or black; single unit, water resistant
Power Consumption 12-24 V, 13 W via GPIO (external power required)  Machine Vision Standard IIDC v1.32  Camera Control via Ladybug SDK, CSRs, or third party software  Camera Updates In-field firmware updates  Optics 6 high quality 4.4 mm focal length lenses  Field of View 90% of full sphere  Spherical Distance Calibrated from 2 m to infinity  Focus Distance ~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Temperature Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance CE, FCC, RoHS  Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Dimensions	197 mm diameter, 160 mm height (with lens hoods)
Machine Vision Standard  Camera Control  Via Ladybug SDK, CSRs, or third party software  Camera Updates  In-field firmware updates  Optics  6 high quality 4.4 mm focal length lenses  Field of View  90% of full sphere  Spherical Distance  Calibrated from 2 m to infinity  Focus Distance  -200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Temperature  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Mass	3.0 kg
Camera Control  Via Ladybug SDK, CSRs, or third party software  Camera Updates  In-field firmware updates  Optics  6 high quality 4.4 mm focal length lenses  Field of View  90% of full sphere  Spherical Distance  Calibrated from 2 m to infinity  Focus Distance  ~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Temperature  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Power Consumption	12-24 V, 13 W via GPIO (external power required)
Camera Updates  In-field firmware updates  Optics  6 high quality 4.4 mm focal length lenses  Field of View  90% of full sphere  Spherical Distance  Calibrated from 2 m to infinity  Focus Distance  ~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Temperature  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Machine Vision Standard	IIDC v1.32
Diptics 6 high quality 4.4 mm focal length lenses  Field of View 90% of full sphere  Spherical Distance Calibrated from 2 m to infinity  Focus Distance ~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Temperature Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance CE, FCC, RoHS  Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Camera Control	via Ladybug SDK, CSRs, or third party software
Field of View  90% of full sphere  Calibrated from 2 m to infinity  -cous Distance  -200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Temperature  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Camera Updates	In-field firmware updates
Spherical Distance Calibrated from 2 m to infinity	Optics	6 high quality 4.4 mm focal length lenses
Focus Distance  ~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity  Temperature  Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity  Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance  CE, FCC, RoHS  Operating System  Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Field of View	90% of full sphere
Temperature Operating: -20° to 50°C; Storage: -30° to 60°C  Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)  Compliance CE, FCC, RoHS  Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Spherical Distance	Calibrated from 2 m to infinity
Humidity Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation) Compliance CE, FCC, RoHS Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Focus Distance	~200 cm. Objects have an acceptable sharpness from ~60 cm to infinity
Compliance CE, FCC, RoHS  Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Temperature	Operating: -20° to 50°C; Storage: -30° to 60°C
Operating System Windows or Linux 64-bit for capture and recording only with 8 GB RAM	Humidity	Operating: 20 to 80% (no condensation); Storage: 20 to 95% (no condensation)
	Compliance	CE, FCC, RoHS
Environmental Rating IP65 Certified	Operating System	Windows or Linux 64-bit for capture and recording only with 8 GB RAM
	Environmental Rating	IP65 Certified
Narranty 2 Years	Warranty	2 Years

For more information please contact:



## **BOCK OPTRONICS INC.**

14 Steinway Blvd., Unit 7 Toronto, Ontario M9W 6M6

Tel: (416) 674-2804 sales@bockoptronics.ca www.bockoptronics.ca

