SPHERICAL VISION SYSTEMS

Ladybug6

Ladybug6 is the leading high-resolution camera that captures 360-degree spherical images on a moving platform in outdoor all-weather conditions. Its industrial grade design and out-of-the-box factory calibration produces 72 Megapixel (MP) images with pixel values that are spatially-accurate within +/- 2 mm at 10-meter distance.

As the newest member of the field-proven Ladybug family, Ladybug6 builds on its machine vision heritage with increased image resolution, enhanced on-board processing, and robust IP67-rated connectors. Support for additional Global Navigation Satellite Systems and advanced APIs, combined with hardware inputs, enable precise camera settings and trigger control. Customer applications include panoramic street image production, road surveying, asset inspection, feature extraction for HD map generation among several others.

FEATURES

HIGHEST ACCURACY AND IMAGE QUALITY
Industry leading calibration combined with global shutter CMOS sensors and high-end optics deliver an unbeatable survey grade spatial accuracy of +/- 2 mm at 10-meters. Additionally, the Ladybug6 captures outstanding images across a wide range of lighting conditions with excellent color response, low noise, and a high dynamic range.

ONBOARD PROCESSING AND FEATURE RICH SDK
Building on our field proven Ladybug5+, the Ladybug6 captures, compresses, and transmits 8-bit or 12-bit pixel data with on-board image processing for optimized workflows. Our feature rich Ladybug Software Development Kit (SDK) enables image acquisition, spherical and panoramic image production, and fine grain control of pre & post acquisition camera settings via a user friendly and friendly user interface.

BUILT FOR THE OUTDOORS
Designed from the ground up to capture images from moving platforms in outdoor environments, the Ladybug6 features an IP67 rating, industrial grade IP67 rated connectors, a wide operating temperature range (-30° C to 50° C), support for additional Global Navigation Satellite Systems, and trigger control by hardware or software with advanced APIs for complete camera control.

APPLICATIONS

HD Mapping

Asset Management

Roadside Inspection

Street View

Road Maintenance

Heritage Scanning

Building Management

SPECS	LD6-U3-122S7C
Full Resolution	12,288 x 6,144 (72 MP)
Frame Rate	15 FPS JPEG at 72 MP resolution / 29.9 FPS JPEG at 36 MP resolution
Interface	M12 X-coded 8-pin USB 3.1 Gen 1 for camera control and video data
General Purpose I/O Ports	12-pin GPIO connector for external trigger input, strobe output, power, and PPS
Dimensions/Mass	198 mm (height) x 269 mm (diameter) / 5.2 kg
Optics	Six high quality 6.94 mm focal length lenses
Case	Machined aluminum housing, anodized red or black
Protection	IP67
Mounting	Five M4-0.7 x 8 mm mounting holes to attach to tripod adapter or custom mount
Desiccant	Desiccant plug to minimize moisture in the enclosure and prevent lens fogging
Transfer Rates	5 Gbit/s
Power Interface	via GPIO only, not USB3 interface
Power	12-24 V via GPIO (external power required) / 13 W maximum
Environmental Sensors	Temperature, Humidity
LED	One general purpose status LED for monitoring camera power, initialization, and USB3 activity
Field of View	~90% of full sphere
Angular FOV (per rotated sensor)	Vertical: ~117.4° / Horizontal: ~85.9°
Spherical Distance	Calibrated from 2 m to infinity
Focus Distance	~200 cm. Objects have an acceptable sharpness from ~100 cm to infinity
High Dynamic Range	Cycle 4 gain and exposure presets
External Trigger Modes	Standard, bulb, skip frames, overlapped, and multi shot trigger modes
Image Processing	Luminance: Black Level, Exposure Tonal: Gamma, Tone Mapping Color: White Balance, Saturation, Leveling, Noise Reduction, Sharpening, False color removal
Gain	0 - 18 dB
Gamma	0.50 to 4.00
Image Output (SDK)	Image Projections: Panoramic, Dome, Cubic, Individual Sensor, Rectified File Types: JPG, BMP, PNG, TIFF
Video Output (SDK)	Video .AVI: H.264 Video .MP4: H.264, HEVC/H.265, AV1
Shutter Speed	0.02 ms to 2 seconds (extended shutter)
Shutter Type	Global shutter
Memory Channels	2 memory channels for custom camera settings
Flash Memory	1 MB
Recommended RAM	8 GB for capture and recording / 16 GB for post processing
Recommended Operating System	Windows 10 64-bit or Ubuntu 20.04 64-bit for capture, recording, and post processing / ARM64 for capture only
Recommended CPU	11th Gen Intel® Core™ i7 processor
Recommended Compilers	Microsoft Visual Studio 2015 or newer / g++ 9.3.0 or newer
Machine Vision Standard	IIDC v1.32
Compliance	CE, RCM, FCC, RoHS, KCC
Temperature	Operating: -30° to 50°C Storage: -30° to 60°C
Humidity	Operating: 20 to 80% (no condensation) Storage: 20 to 95% (no condensation)
Warranty	2 Years

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Machine Vision