

Titania

STEREO VISION IN THE PALM OF YOUR HAND



Titania uses the latest sensor technology from Sony, meaning the system can produce high resolution 3D models and 2D images. Its small form factor and global shutters mean it can perform scans of areas through handheld operation or using a robotic arm. Because Titania uses a global shutter and hardware-triggered frame synchronisation, it can capture subjects in motion. Combined with a 60 fps rate, Titania makes it easy to capture smooth 3D video in any conditions.

Titania was originally developed for deployment in the nuclear industry. The system is small enough to access all areas of a glovebox, including through the 6-inch ports, pipes, and vessels. By utilising the latest machine learning algorithms, Titania can perform object detection to alert users of sharp and hazardous objects. The output can be saved for post-process inspection or saved for regulatory purposes. With all the data processing being performed by the embedded system, the user may attach a tablet for viewing, making the system completely portable.

Titania can also be combined with Raman spectroscopy produced by i3Dr's sister company, IS-Instruments, allowing the user to both produce a 3D model of a scene and characterise chemical species within it, all in one integrated package. Callisto, the combined system can be mounted on a robotic arm to survey remote and hazardous locations.



Technical Specifications

Including stereo information with theoretical measurements. Z axis indicates depth, perpendicular to the camera sensor plane.

Interface	USB3.0 (5 Gbps)	Software compatibility	Windows 7+, Linux, OpenCV, ROS
Camera resolution (px)	1,456×1,088 (1.5 MP)	Weight	350g
Pixel Size	3.45 μm x 3.45 μm	Dimensions	130 x 58 x 66 mm
Bit depth	Monochrome 8/12-bit	Coverage area at 0.5 m (H x V)	0.4 x 0.3 m
Sensor (x 2)	Sony IMX273 (1/2.9")	Field of View	45° x 34°
Maximum Acquisition Framerate	60 fps*	Baseline	90 mm
Focal length	6 mm	Depth resolution at 0.5 m	0.4 mm
Focus	0.5 m to 1m**	X/Y resolution at 0.5 m	0.11 mm
Shutter type	Global	Coverage area at 0.5 m (H x V)	0.4 x 0.3 m
Synchronisation	Hardware triggered	Field of View	45° x 34°

*When running in offline 3D processing mode. Live 3D processing is dependent on processor performance. Contact i3Dr robotics for more information. ** The Titania stereo systems are factory-focused for an optimum measurement at 0.75m. Please contact us if you require a different measurement range as the focus range may be adjusted.

