



TYZX | *systems that see*

DeepSea™ 3D Vision

DeepSea Stereo Cameras



TYZX DeepSea Stereo Vision cameras are precision designed, built and tested to provide accurate, reliable real-time performance for product development and deployment. Designed specifically to be used with TYZX DeepSea V2 Stereo Processor, DeepSea Stereo Cameras deliver quality results with an emphasis on ease of use. As with all TYZX products, DeepSea Stereo Cameras offer a development path to affordable, embedded systems.

DeepSea Stereo Cameras feature:

- Robust design to maintain calibration
- Auto ID to relay camera calibration and configuration to SEER software
- Factory Calibration and testing

DeepSea Stereo camera configurations are also available on the G2 Embedded Vision System.

Stereo Baseline

Increasing baseline improves a camera's range accuracy at distance, while increasing the minimum operating distance of the camera. DeepSea Stereo Cameras are available in 3cm, 6cm, 8cm, 14cm and 22cm baselines. Custom baselines are also available.

Lenses

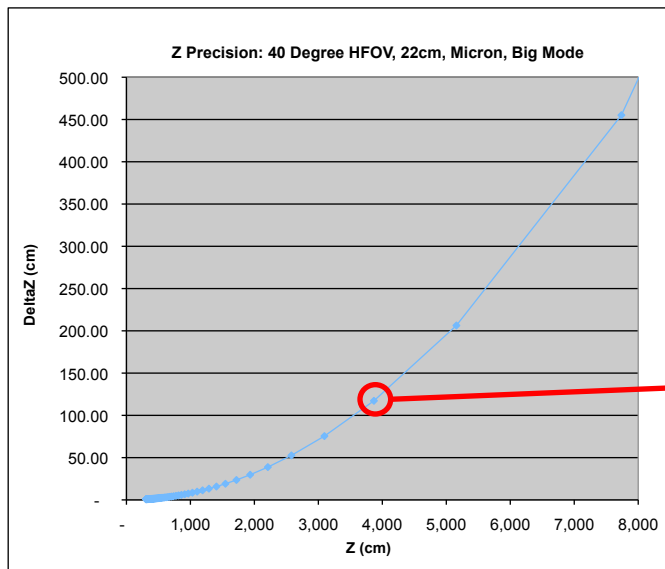
DeepSea Stereo Cameras are available with 40°, 62° or 83° degree Horizontal Field of View. HFOV represents the actual HFOV of the Range image.

Imagers

DeepSea Stereo Cameras are available with Aptina MT9V022 CMOS imagers. These imagers feature

- Global shutter
- Dynamic Range: 10 bit pixels; 80dB - 100dB HyDy mode
- Monochrome or color operation

The TYZX Stereo Camera is lightweight and low power, employing inexpensive off-the-shelf digital CMOS imagers and miniature lenses for low-cost deployment.



Z: Range measurement in cm

ΔZ : Range quantization based on 3 bits fractional disparity (5 bits computed)

HFOV: Horizontal Field of View of Range image

Max Z: Conservative estimate of maximum useful range for typical applications. Computed as the Z and ΔZ values at Disparity 4.

Example 22cm baseline camera performance

Baseline	Lens	40° HFOV		62° HFOV		83° HFOV	
		Z (cm)	ΔZ (cm)	Z (cm)	ΔZ (cm)	Z (cm)	ΔZ (cm)
3 cm	Min Z	41.4	0.10	25.1	0.06	17.0	0.04
	Max Z	527	16.0	319	9.68	217	6.58
6 cm	Min Z	82.7	0.20	50.1	0.12	34	0.08
	Max Z	1055	32.0	639	19.4	434	13.2
8 cm	Min Z	110	0.27	66.8	0.16	45.4	0.11
	Max Z	1406	42.6	852	25.8	579	17.5
14 cm	Min Z	193	0.47	117	0.29	79.4	0.19
	Max Z	2461	74	1491	45.2	1013	30.7
22 cm	Min Z	303	0.74	184	0.45	125	0.31
	Max Z	3868	117	2343	71.0	1592	48.2

About TYZX

TYZX is a 3D vision company providing a platform of hardware, software and services for building products that see and interact with the world in three dimensions. TYZX delivers high volume, cost-effective 3D vision solu-

tions to industry leaders in automotive, consumer electronics, robotics and security markets. Founded in 2002 and based in Menlo Park, Calif., TYZX is privately funded. For more information, visit www.tyzx.com or email info@tyzx.com

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