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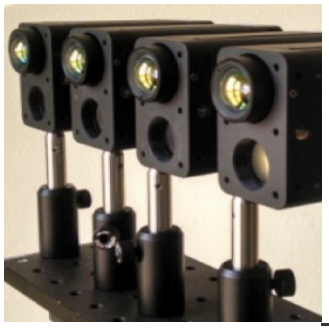
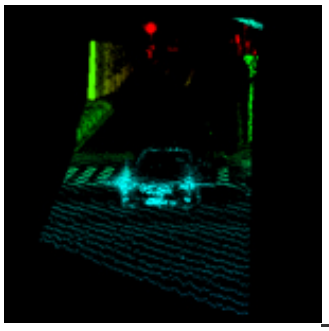
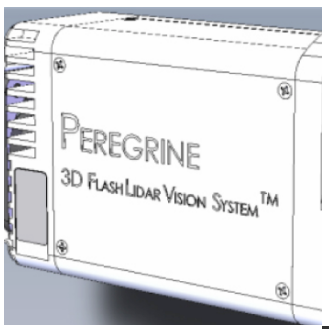
[images/peregrine-3-191x236.jpg] Click Image to Expand

 [images/multiple.png] Click Image to Expand

 [PeregrineDriving.avi] Click Image to View Video



[images/sketch-peregrine.png]

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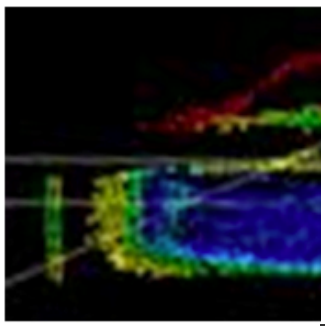
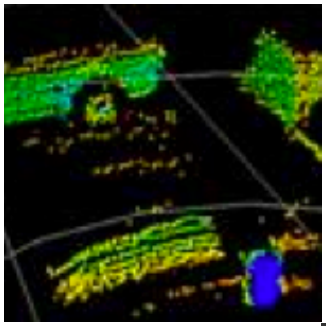
 [images/VideoFrameSample-Peregrine.jpg] Click here to enlarge

 [images/VideoFrameSamples-Peregrine2.jpg] Click here to enlarge

Peregrine 3D Flash LIDAR Vision System™

ASC is the world's leader in 3D Flash LIDAR cameras. ASC designed the Peregrine family of **3D Flash LIDAR Video Cameras** as lightweight, low power 3D video cameras that output range (point cloud) and intensity in real-time for use in a wide range of applications ranging from aerial mapping to active safety to surveillance. Peregrines are used by automotive companies to evaluate 3D Flash LIDAR cameras for their active safety and autonomous applications such as collision avoidance and lane departure warning systems.

The lightweight Peregrine camera is a solid state 3D staring array LIDAR camera with no moving parts other than a fan [*i.e., it is not a scanning Lidar device*]. Peregrines illuminate an area of interest represented by the field of view of the lens with a single short [5 nanosecond] Class I (eye-safe) laser pulse per frame and captures the reflected laser light in the form of 3D range point clouds and co-registered intensity data. With 128 x 32 [4,096] pixels and a 4:1 aspect ratio, Peregrine cameras operate up to 20Hz. Peregrines are configured with a choice of bayonet mount lenses options of 60°x15°, 45°x11.25°, 30°x7.5° and 15°x3.75°.

Specifications

- **Size:** Front Face, 5cm x 7.6cm; Depth with lens (short) and fan, 14.95cm
- **Pixels:** 128 x 32
- **Power:** 24 watts to start; less than 13 watts continuous
- **Weight:** <680gs without cables or lens
- **Mounting:** Front face flange or via ¼ x 20 camera mount under front face flange
- **Thermal path:** Fan

Environment

- Standard operational temperature range: -5° to 35° C (full performance)
- Operational temperature range: -30° to 0° C and >35° to 50° (reduced performance)
- Survivability: -55° to +80° C
- Water resistant, rain will reduce range performance; dust and moisture resistant fan
- Altitude: -75 m to 5,486 m MSL (-250 to 18,000 feet), sea level = 0 meters

System Power

- Voltage: **128x32:** 12.0VDC +/- 10%
- Maximum current: 2 amps; 3mJ version up to 5 amps

Shock and Vibration Limits

Constraint	Operating	Non-operating
Shock	20 G's, 11 msec, half-sine	30 G's, 11 msec, half-sine
	0.2 G's, 5 to 500 Hz swept-	1.0 G's, 5 to 500 Hz swept-

Vibration	sine	sine
Handling Drop	N/A	1m

Optical

- Minimum range from camera receiver lens, < 8 inches (20.3cm)
- Maximum range of object detection with reflectivity (albedo) of 10% depends upon laser power; less range with less reflection (lower albedo)
- "Normal" for the 4:1 aspect ratio is vertical orientation with sensor/lens above laser aperture

Laser

- Pulse width (expected): ~5 nSec +/- 3nSec FWHM
- Run at rate: Up to 20 Hz; optional 30 Hz available
- Active cooling (dust resistant fan)
- Full laser performance with case temperature -5° to 35°C
- Performance temperature >35°C or less than -5°, TBR
- Wavelength: Class I (eye-safe) operating 1.57um for 3mJ or better output

Ethernet Port

- Standard Ethernet per IEEE 802.3u 1995 [8 pin connector]
- Camera power supply thru unused pins per ICD A15002
- Standard 100BASE-T protocol and voltage levels, 5V compatible
- Possible to synchronize frames (data capture) on up to 8 cameras with 2D cameras and GPS/INS via ROS (.bag files)
- Supporting ROS running Ubuntu Linux

Bayonet Lenses for 3DVAC-PG-2832-PC-3.0

- 15° FOV Lens Part Number: 104160 Diffuser Part Number: 104290
- 30° FOV Lens Part Number: 104065 Diffuser Part Number: 104071
- 45° FOV Lens Part Number 102330 Diffuser Part Number: 101973
- 60° FOV Lens Part Number: 103706 Diffuser Part Number: 104072

June 2015

Catalog Number	Pixels	Laser Energy	FPS (max.)	Lens Mount	Max. Range		
3DAVC-2832-PC-3.0	128 x 32	3.0 mJoules @	20 Hz	Bayonet	Lens Dependent		

		1.57 um					
Lens/Focal Length	**Weight**	**Distortion at Edge**	**Part #**	**Diffuser**	**Part #**	**Diffuser**	**Part #**
15° FOV Bayonet Mount 29.8° = 25.4mm	120g	-0.7%	104160	4:1 Aspect Ratio	104...	Square	104290
30° FOV Bayonet Mount 15.1° = 48.6mm	80g	-5%	104065	4:1 Aspect Ratio	104...	Round	104071
15° FOV Bayonet Mount 15.1° = 48.6mm	70g	-9%	102330	4:1 Aspect Ratio	10...	45 x 22	101973
15° FOV Bayonet Mount 15.1° = 48.6mm	80g	-6.4%	103706	4:1 Aspect Ratio	104...	Square	104072

Read the full Peregrine Press Release **Here** [../company/documents/PeregrineMay2014_FINAL.pdf]

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