



L3CAM

Safe navigation
for any vehicle



 **BEAM\ENGINE**

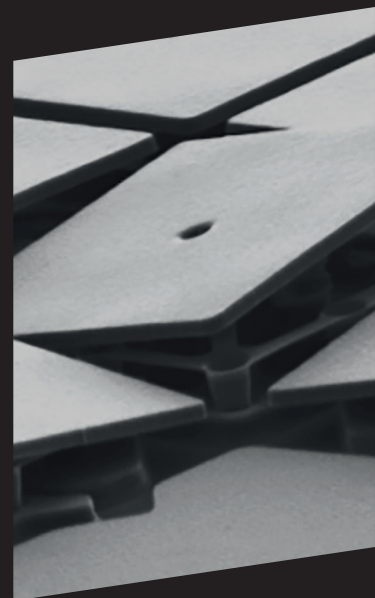
At a glance

- Integrated sensing system made by 3 imaging modes:
 - Long range solid-state LIDAR
 - RGB camera
 - Thermal LWIR camera
- All in one case, single data interface
- Parallax free image fusion
- Optical calibration set in factory
- Robust integration → no recalibrations needed during operation
- **Congruent images ready for perception AI!**



Patented solid-state scanning LIDAR

- Patented MEMS-based solid-state concept (12 patents)
- No mechanical moving elements
- Long range detection in Class 1 laser power levels
- High angular resolution at the 3D point cloud
- **Customized specs are possible!**

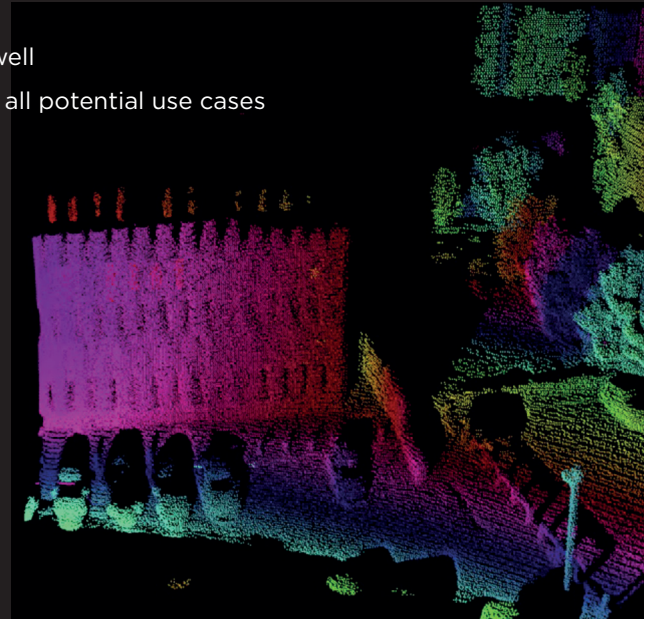
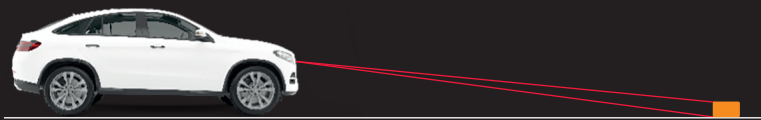


HARDWARE CONFIGURATION

	Wide FOV	Long Range
Range: Ambient Light 500W/m ²	60m @ 10% object reflectivity 130m @ 50% object reflectivity	120m @ 10% object reflectivity 270m @ 50% object reflectivity
Field-of-View (HxV)	60 x 20 deg	20 x 20 deg
Point cloud resolution	460 x 150 px	460 x 150 px
Angular resolution	0.13 x 0.13 deg	0.08 x 0.06 deg
Point rate	600 Kpx/s	
Frame rate	8 Hz	
Range accuracy	± 2 cm	
Number of returns	4 hits	
Laser wavelength	1064 nm	
Laser product class	Class 1 eye-safe per IEC 60825-1:2007 & 2014	

High resolution for safe autonomous navigation

- Long range without high spatial resolution is not enough for a safe autonomous navigation
- Smallest obstacles (<10cm) need to be detected at a distance as well
- The L3CAM offers a wide range of imaging configurations to fulfill all potential use cases
- Angular resolution can be adjusted by configuration to reach outstanding values as good as 0.05° in both axes
- **Safe drivable space detection is made possible by the L3CAM!**

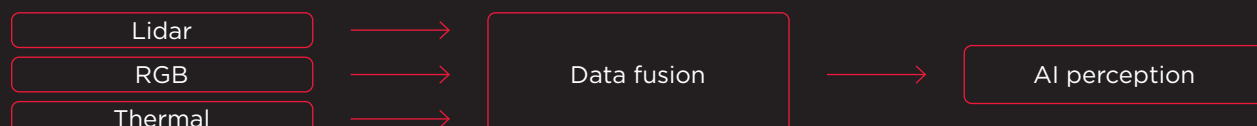


Congruent data fusion

- L3CAM integrated multimodal system provides several advantages comparing with traditional sensor integration on a vehicle platform
- The user forgets about all the integration and calibration tasks, go directly to the AI development
- **Hardware pain out of the software team**
- **No parallax issues: Reliable data in, good perception out!**

	DETACHED	INTEGRATED
	The camera are placed in different locations	Cameras are integrated into the same housing
Mechanical alignment	Performed by the user	Set in factory
Optical calibration	Performed by the user	Set in factory
Software integration	Complex, completed by the user	Set in factory
Image fusion	Performed by the user	Set in factory
Parallax issues	Very likely	No
Mech. misalignments	Very likely	No
Recalibrations	Very likely	No
Installation cost	High	Minimum

L3CAM early data fusion approach



For any kind of autonomous vehicle



■ Automotive



■ Off-road vehicles



■ Unmanned surface vessels



■ Satellite docking



■ Railway



■ Aeronautics



About us

At Beamagine we are committed to the development of LIDAR and imaging systems to the highest possible industrial standards. This implies the combination of high-tech expertise in optomechanics, electronics and software due to the nature of our products, which require careful prototyping and industrialization of high-technology products.

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