



# L3CAM

Safe navigation  
for any vehicle



**BEAMAGINE**

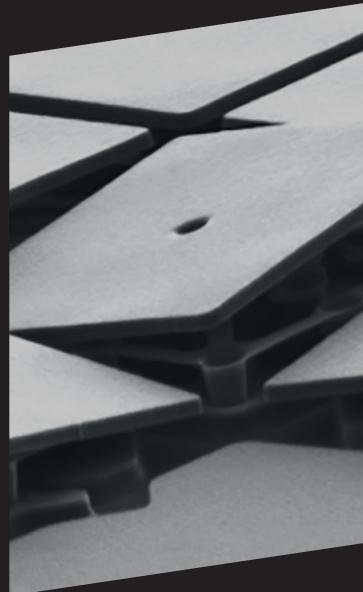
# At a glance

- 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!**

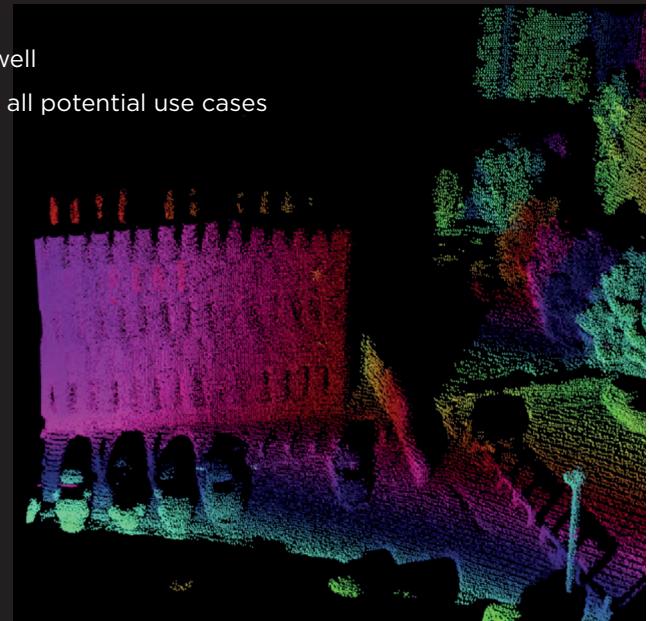


### HARDWARE CONFIGURATION

	Wide FOV	Long Range
Range: Ambient Light 500W/m <sup>2</sup>	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!**

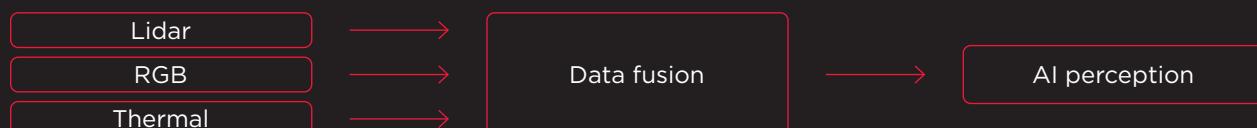


## Congruent data fusion

- 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
<b>Mechanical alignment</b>	Performed by the user	Set in factory
<b>Optical calibration</b>	Performed by the user	Set in factory
<b>Software integration</b>	Complex, completed by the user	Set in factory
<b>Image fusion</b>	Performed by the user	Set in factory
<b>Parallax issues</b>	Very likely	No
<b>Mech. misalignments</b>	Very likely	No
<b>Recalibrations</b>	Very likely	No
<b>Installation cost</b>	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.

## Contact

Rambla Sant Nebridi, 10  
08222 Terrassa (Barcelona)  
Spain

[info@beamagine.com](mailto:info@beamagine.com)

[www.beamagine.com](http://www.beamagine.com)