



## NEWS RELEASE

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For Immediate Release:

### **Insight LiDAR Announces Highest Resolution FMCW LiDAR for Autonomous Vehicles**

*Digital Coherent LiDAR™ puts 10-20 times more pixels on objects, enabling fast, accurate identification.*

**LAS VEGAS** – January 6, 2020 – [Insight LiDAR](https://www.insightlidar.com) announced the demonstration of Digital Coherent LiDAR™, an ultra-high resolution, long-range LiDAR sensor targeted at the emerging autonomous vehicle (AV) market. Insight’s unique sensor combines a number of critical technologies to deliver a low-cost, chip-scale LiDAR that not only has the sensitivity to range low-reflectivity objects at over 200 meters, but also delivers industry-leading resolution, putting 10-20 times more pixels on objects. This ultra-high resolution, along with direct Doppler velocity enables perception teams to identify and classify objects much faster than ever before, while additionally providing the critical information necessary to solve difficult AV edge cases.

LiDAR is the most critical sensor enabling autonomous vehicles. According to Pitchbook’s Q3 2019 Emerging Tech Mobility Report, “Lidar technology is critical for automotive-grade, self-driving applications because it provides distance, speed and depth information in a computationally compact fashion.” However, today’s legacy lidar sensors are unable to simultaneously meet all of the critical performance, cost and reliability targets required for widespread, safe autonomous vehicle operation.

Insight’s Digital Coherent LiDAR was developed from the ground up, to address these critical unmet needs. With more than 12 years of experience in high-resolution medical and industrial imaging, Insight LiDAR put together a combination of enabling technologies and patented techniques culminating in a small, rugged sensor that for the first time simultaneously addresses all critical performance, reliability and cost requirements.

Among the breakthroughs built into Digital Coherent LiDAR are:

- **Ultra-High Resolution:** 10-20 times higher resolution enabling identification of small and dim objects, even at very long range (200+ meters).

- **Direct Doppler Velocity:** Velocity measured with every pixel reduces system latency by 5-8 times.
- **True Solid-State Fast-Axis Scanner:** No moving parts in the fast-axis enabling high-reliability and low cost.
- **Software Defined Foveation:** Enabling flexible pixel patterning.
- **Chip-Scale Architecture:** All photonics on Photonic Integrated Circuits (PICs), all electronics on ASIC. Enabling a low-cost, scalable semiconductor cost structure.
- **Immunity:** Unaffected by sunlight, other lidar or photonic hacking.

Insight LiDAR's extensive patent portfolio covers not only the design and control of the laser source, critical for the FMCW detection technique, but also includes key system IP enabling Insight's high-resolution, foveation, large field of view and long-range performance.

“Perception for autonomous vehicles is a really difficult problem,” said Michael Minneman, CEO of Insight LiDAR. “In the case of LiDAR, you really can't pick and choose which system specifications you want to meet. In order to deliver safe, effective point clouds for the perception team, there are 20 or more really critical specs that all need to be met simultaneously. And they have to be met in an architecture that can be scaled up for low-cost production in the millions of units. That's exactly what we've been able to put together based on over 12 years of technology development.”

“Perception teams all ask for more pixels on objects. More pixels allow algorithms to identify objects and make critical decisions faster,” added Dr. Chris Wood, head of development and technology at Insight LiDAR. “Our technology enables us to drastically increase the pixel count, while simultaneously providing direct velocity information. Together this data addresses most of the really difficult edge cases perception teams face.”

Insight will be demonstrating Digital Coherent LiDAR at the Consumer Electronics Show in Las Vegas in January. To arrange a meeting at CES, please contact Greg Smolka, VP, Business Development at [gsmolka@insightlidar.com](mailto:gsmolka@insightlidar.com) or (978) 766-6805.

#### **Key Features of Digital Coherent LiDAR:**

- Long Range – 200 meters to 10 percent reflectivity targets
- Ultra-High resolution – up to 0.025 x 0.025 degrees
- Large Field of View – 120 x 340 degrees
- Direct Doppler velocity in every pixel
- True solid-state, flexible fast-axis scanning
- Complete immunity from sunlight and other lidar
- Low-cost chip scale, all-semiconductor approach

Further information about Insight LiDAR's Digital Coherent LiDAR™ is available At [insightlidar.com](http://insightlidar.com). Direct inquiries to the company can be made to [contact@insightlidar.com](mailto:contact@insightlidar.com) or by calling (303) 604-5130.

#### **About Insight LiDAR**

Insight LiDAR, launched in 2016, is a wholly owned subsidiary of Insight Photonic Solutions, based in Boulder. Insight Photonic Solutions is an award-winning, global leader in fast-scan, swept wavelength laser technology. Its products are used in applications ranging from biomedical imaging to semiconductor manufacturing to material processing.

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## **Images**

Insight LiDAR Digital Coherent LiDAR Unit: <https://0aceca5826-custmedia.vresp.com/library/1578324624/c96218e40d/insight/Insight-DCL.jpg>

Insight LiDAR vs. Legacy LiDAR: [https://0aceca5826-custmedia.vresp.com/library/1578324652/99967fe2b5/insight/LiDAR\\_Comparison.jpg](https://0aceca5826-custmedia.vresp.com/library/1578324652/99967fe2b5/insight/LiDAR_Comparison.jpg)

From 60 meters away, direct Doppler velocity detects the direction the Segway rider is turning: [https://0aceca5826-custmedia.vresp.com/library/1578331607/bcf30bc671/insight/segway\\_composite.jpg](https://0aceca5826-custmedia.vresp.com/library/1578331607/bcf30bc671/insight/segway_composite.jpg)