A MILESTONE ON THE WAY TO FULLY AUTONOMOUS DRIVING
Ibeo has always been a pioneer. Founded in 1998, it was one of the first companies worldwide to start the development of lidar sensors for automotive applications. Bringing Ibeo’s lidar technology into automotive serial production was the next big step we took.

The new ibeoNEXT Solid-State Lidar now allows Ibeo to expand its position as a technology leader in the field of lidar sensors. The ibeoNEXT impresses with its modular optics concept, small size and weight and serial production readiness, making its mark as yet another milestone from Ibeo on our way to making fully autonomous driving a reality.
The ibeoNEXT sensor consists of a transmitter and receiver unit with 80 rows per 128 columns.

The sensor uses the technology of sequential flashing, which means that the environment is scanned row by row. For every scan, each row is illuminated multiple hundred times. Therefore, each scan consists of thousands of measurements. In addition, rows can be activated in every sequence, depending on the need of the automated driving function.

The base of this technology are three ASICs:
- Transmitter (VCSEL): 10,240 lasers
- Driver: 25 Hz, full image
- Receiver (SPAD): 10,240 pixels
Solid-state lidar technology is based solely on a semiconductor solution and comes without any moving parts. That’s how we made ibeoNEXT smaller than a credit card and so light weight – because size matters!
A MODULAR CONCEPT

The same core components are usable with modular optics to allow variable fields of view. Depending on the application, 11.2 degree, 32 degree\(^*\), 60 degree, or 120 degree optics can be selected. Sensors can be installed, combined or mounted in many different ways to accommodate a multitude of use cases. With this modular approach, ibeoNEXT enables not only today’s advanced driver assistance systems, but also many future applications.

\(^*\)Currently under development.
APPLICATIONS FOR ANY USE CASE

The sensor functionality is not limited to the applications shown here.
ENABLER FOR AUTONOMOUS DRIVING
FROM LEVEL 3 TO 5

Highway pilot: Detection of objects that are 20 cm in size from a distance of 130 meters due to a high angular resolution up to 0.07°.

Cutting-in vehicles: Precise object shape detection with a wide horizontal field of view up to 120°.

Complex traffic scenarios: Detection that covers a 360° field of view by mounting various sensors around the vehicle.

Overhanging load: Precise detection through 3D modelling of the environment and a vertical field of view of 37.5°.
The ibeoNEXT Lidar System consists of three major parts: Ibeo’s solid-state lidar sensors, lidar domain ECU (LDE) and proprietary perception software.

The sensors generate an integrated point cloud and intensity image of the environment. These provide essential information on the position of every object in their field of view.

The perception software running on the LDE continually processes the raw sensor data to classify all surrounding objects as vehicles, infrastructure, or lane markings, and determine free space.

The compiled results are then transferred to the vehicle’s software, enabling a host of L3 automated driving functions.
THE TECHNOLOGICAL ADVANTAGES AT A GLANCE

- No moving parts
- Variable scan frequency
- High serial production readiness
- Small size and weight
- 4D output: Point cloud & intensity image
- Full system solution incl. software
- Same core components with modular optics for variable fields of view
- High vertical and horizontal resolution
IBEO – A STRONG PARTNER AT YOUR SIDE

400+ employees at the locations in Hamburg (Germany), Eindhoven (Netherlands) and Detroit (USA)
Coming soon: Beijing (China)

Strong partnership with ZF and AAC Technologies. Production site in Brest (France) already set up

Experience in developing Lidar sensors for use in automotive since 1998

One of the TOP 100 most innovative companies in Germany

Ibeo brought the Valeo SCALA® in cooperation with the French supplier Valeo into series production in 2017

First Lidar series supplier in China for Great Wall Motor with newly developed ibeoNEXT. Start serial production end of 2022.