

Lidar technology enables real-time, granular 3D insights of smart spaces, machinery and behavior. It enhances operations, customer experience and safety, without capturing personally identifiable information.

DATASHEET

Hitachi 3D Lidar Sensor Delivers Real-Time 3D Insights and Alerts

Gain Detailed Insights With 3D Lidar Solutions for Smart Spaces

Lidar technology is similar to radar or sonar, but instead of using radio or sound waves, it measures the time of flight (ToF) of laser points to build three-dimensional, real-time information about the physical world. The laser points that are generated by lidar are called the point cloud. This technology has been widely used in autonomous vehicles (AVs) and geographical mapping from drones. And new innovations have dramatically reduced costs to enable lidar for use in smart spaces such as retail, airports, event spaces, facilities, healthcare campuses and so forth. With the addition of machine learning techniques, this data can provide a wealth of valuable insights for enhancing operations, safety and customer experience.

Hitachi 3D Lidar Sensor offers granular resolution and close-range data that can be stitched together from multiple devices to provide full coverage (see Figure 1). One sensor provides 3D sensing in light or dark environments thanks to a self-generated infrared (IR) laser light emitter and receiver (see Table 1 for more specifications).

Gain Valuable Insights While Protecting Privacy

Because lidar uses laser “point clouds” and not natural light, it does not capture

personally identifiable information (PII) about the individual identity of people within its field of view. This opens up an array of use cases where video security or video analytics would be restricted. These zones include hospital facilities, restroom and hand-washing areas, schools with minors present, and other areas where people may object to video monitoring. Lidar is an ideal solution in these use cases, as it enables GDPR¹-compliant data gathering in public or private spaces.

People and Object Movement

Due to the 3D nature of lidar data, it is well-suited for determining different objects in the field of view. It is effective in situations that might be confusing for video analytics, including low-angle, crowded areas such as stores, transit stations, elevators or passenger rail cars. It

can also detect distance between objects in real time for real-time alerts and statistical information.

Safety and Protection

By detecting anomalous behavior, lidar solutions can help with alerts for “slip-and-falls,” security breaches, unsafe behavior or intrusion into restricted areas, or unsafe distances between people and dangerous machines or robots. Lidar solutions can also detect anomalous behavior on assembly lines to help managers coach workers to achieve higher quality and avoid dangerous or unhealthy movements.

Business and Customer Insights

Just as online retailers use granular visitor data to refine their marketing and inventory, brick and mortar retailers can now

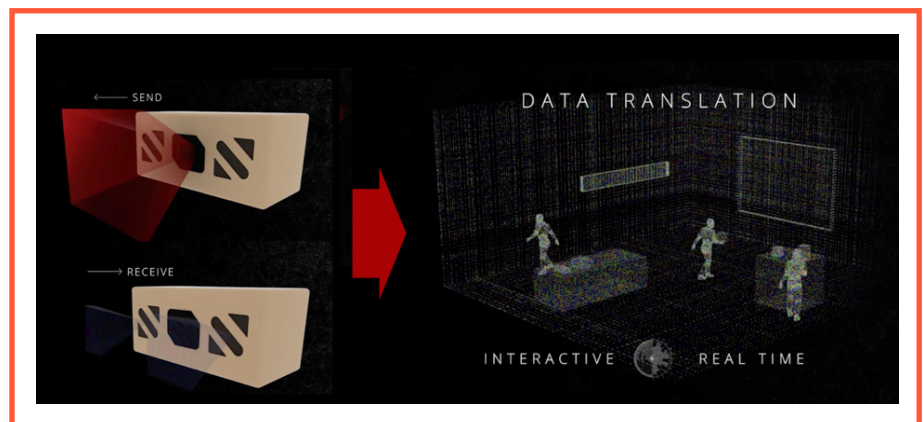


Figure 1. Hitachi 3D Lidar Sensor sends out pulses of diffused lasers or infrared light and measures the time of flight of the light to produce 3D insights of the physical world.

have similar insights for the physical world. Hitachi 3D Lidar Sensors can provide a wealth of insights about customer behavior, product interactions, and visitor journeys throughout facilities. Use these insights to manage staffing, inventory, marketing messaging, store arrangement and more. Combine them with other data, such as point-of-sale (POS), inventory tracking, enterprise resource planning (ERP), video analytics or beacon technology, and online store information. Lidar offers a powerful addition to a business data ecosystem that helps enrich the omnichannel insights available.

A Valuable Data Source for Smart Spaces and Smart Operations

Lidar is an excellent data source that complements many other types of data to achieve smart spaces and smart operations. These additional data types could include video intelligence, internet of things (IoT) sensors, business data from ERP systems and so forth. Every environment is unique in one way or another. Each requires the right data mix to maximize return on data and help the organization reach its business, safety or operational goals. Hitachi is a leader in delivering smart spaces in many different industries and customer environments. We leverage IoT, video, lidar and data management solutions that help our customers reach the outcomes they seek.

Lidar
Enhances
Insights

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Lidar is an ideal solution for gathering business, operational and safety insights and alerts in a variety of environments, without capturing private information.

- **Retail:** Understand customer behavior and product interactions, including journey paths and dwell times for store optimization.
- **Smart Cities:** Gain pedestrian data and alerts, and public space usage insights to optimize public services.
- **Healthcare:** Gain GDPR-compliant patient alerts and behavior insights, handwashing verification for surgeons, and campus insights.
- **Manufacturing:** Ensure assembly quality and gain slip-and-fall or safety alerts with movement analysis.
- **Transportation:** Provide real-time vehicle occupancy, station usage and hazard alerts.
- **Airports:** Ensure on-time performance and customer experience with luggage volume sizing, gate analysis and lounge insights.
- **Critical Infrastructure:** 3D scanning of infrastructure detects defects, obstructions and foliage to prevent damage or safety issues.
- **Physical Security:** Detect tailgating, intrusions, dangerous objects, violent interactions and more in buildings, elevators and other areas.

TABLE 1. HITACHI 3D LIDAR SENSOR SPECIFICATIONS

| Items | Specification |
|------------------------|--|
| Sensing Distance | 0.7~10m |
| Field of View (FOV) | H80° x V60° |
| Pixel Resolution | 640 x 480 pixel (7 frames per second or fps) 320 x 240 pixel (30 fps) |
| Lighting | Infrared IR LD |
| Size | 138 x 69 x 69mm (excluding projecting part) |
| Weight | 540 g (excluding cable) |
| Interface | Ethernet 100BASE-TX |
| Power Supply | Power over Ethernet+ (PoE+) |
| Illumination Condition | Under 10,000 lux (indoor @daytime) |
| Temperature Condition | 0~45°C |
| Humidity Condition | 0~95% (noncondensing) |
| Laser Class | Class 1 |
| Power Consumption | 15W |
| Color | White/Black |
| IP Standard | N/A |

¹ The EU's General Data Protection Regulation

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