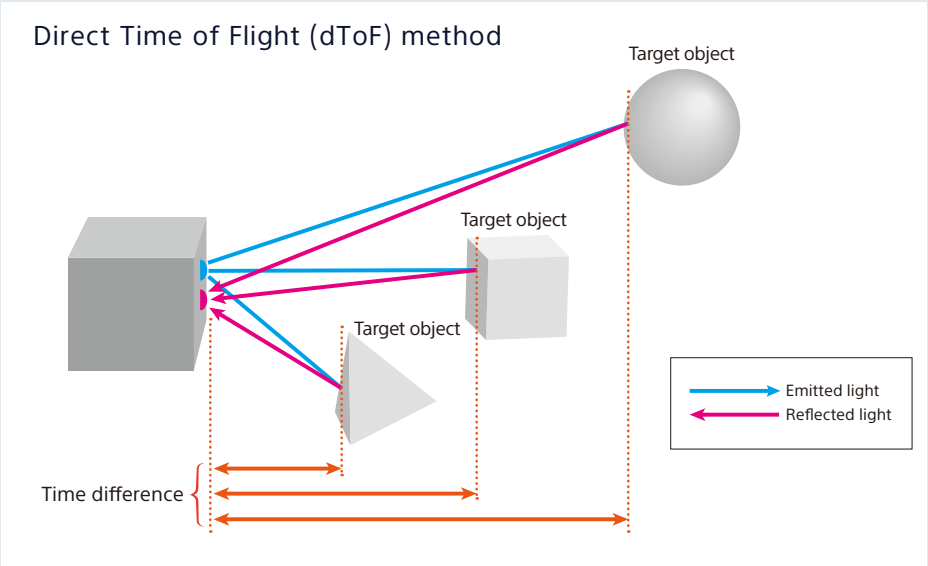


Direct Time of Flight (dToF) method

A ranging method that calculates distance by measuring the time it takes for light to be reflected back from an object.



A LiDAR depth sensor, coming with the great ranging measurement capability as well as the world's smallest and lightest*¹ housing, which makes it mountable on robots and drones.

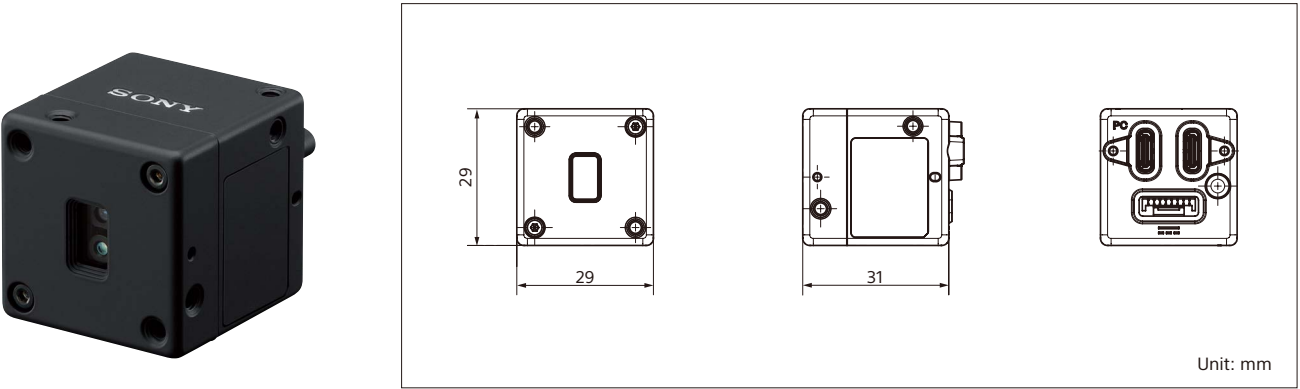
Adopting the "Direct Time of Flight (dToF) method," which delivers highly accurate measurement, distance resolution, and measuring range.

High Measurement Accuracy and Distance Resolution

Long Measurement Range

Compact, Lightweight, and Robust Housing

External Dimensions



Specifications

Features	Specifications
HFoV	30° or more * ²
Maximum measurement range @15 fps, 50% reflectivity, center	Indoor: 40 meters* ² Outdoor: 20 meters* ²
Measurement accuracy @10 m	Indoor/Outdoor: ±5 cm* ²
Distance resolution	0.25 mm
Frame rate	30 fps 15 fps @ Maximum ranging distance mode
Number of ranging points	576 (24x24)
Laser wavelength	940 nm
Dimensions	W29 x H29 x D31 mm (excluding protrusions)* ²
Weight	50 g or less* ²

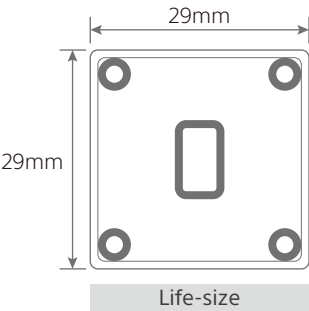
*² These figures are provisional and may differ from final specifications.

Provisional version

LiDAR Depth Sensor

NEW

AS-DT1



Distributed by

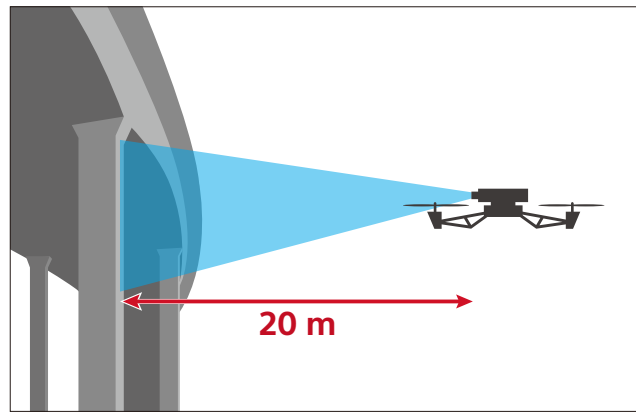
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Long Measurement Range

Its ranging measurement is highly accurate; even from a long distances of 40 meters indoors and 20 meters*² outdoors on a clear summer day (assuming 100,000 lux). This measurement accuracy, from a distance even outdoors, makes it very useful to measure distances to objects that are difficult for people to approach, such as bridges, expressways, and dams.

*2 These figures are provisional and may differ from final specifications.



High Measurement Accuracy and Distance Resolution

By employing Sony's proprietary dToF ranging module equipped with a Single Photon Avalanche Diode (SPAD)*3 sensor, it enables highly accurate ranging measurement and distance resolution*4. It can measure at various distances, for example, at 10 meters with a margin of ± 5 cm*2 both indoors and outdoors.

Furthermore, it can accurately measure the distance to various objects, which is difficult with other ranging measurement methods.

This includes the low-contrast objects, objects with low reflectivity, and objects floating in the air, making it suitable for integration into robots used in environments such as warehouses and stores where various objects are mixed together.

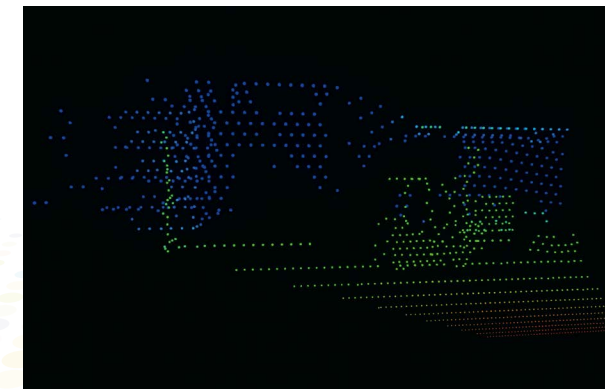
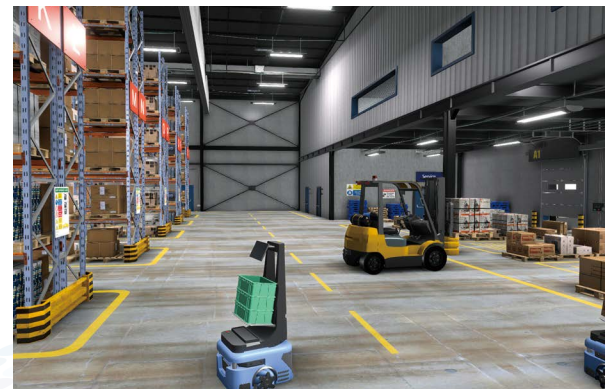
*2 These figures are provisional and may differ from final specifications.

*3 An electronic device (diode) that achieves high sensitivity by utilizing "avalanche multiplication," which amplifies electrons like a snow avalanche from a single incident photon.

*4 The ability to recognize minute differences in distance between multiple objects.

Point Cloud

An example of ranging measurement data displayed as point cloud data (an image for illustration purposes only)



Far ● ● ● ● ● ● ● Near

By using multiple measurement points for distance measurement, the LiDAR Depth Sensor can make accurate three-dimensional distance measurements in vertical, horizontal, and depth directions. Additionally, it can measure distances to subjects that are difficult to detect with other distance measurement methods, such as low-contrast subjects and subjects with low reflectivity.

Compact, Lightweight, and Robust Housing

This is the world's smallest and lightest sensor; 29 mm in width x 29 mm in height x 31 mm in depth^{*5}, with 50 g in weight. The use of an aluminum alloy for the housing achieves both lightness and robustness.

This compact housing makes it easy to integrate into various devices, such as autonomous mobile robots with limited space for depth sensors, and drones where weight affects the flight distance.

*5 Excluding protrusions.



Application

While meeting the needs of a wide range of industries, this sensor supports automation that can coexist safely and securely with society.

This device is capable of accurately measuring distances in environments such as stores, where various objects, including people and fixtures, are expected.

The range of applications will be expanded by integrating it into various devices, such as food serving robots in restaurants, autonomous mobile robots in warehouses, and drones used for inspections and surveys.

