

CUBE 1

Compact solid-state LiDAR

The Cube 1 is a fully integrated scanning LiDAR sensor in a small form factor. It comes with a point cloud interface and no additional adapter boxes are required for operation. Blickfeld's patented MEMS-based LiDAR technology enables a field of view of 70° x 30° and a maximum detection range of 250 meters. The sensor's field of view, number of scan lines and frame rate can be flexibly configured via software, enabling a variety of application scenarios.



DISTINCTIVE FEATURES



Configurable Scan Pattern



Easy Installation and Setup



Information Rich Data



Small Size and Light Weight



Web User Interface



On-Device Processing

SPECIFICATIONS

OPTICAL PERFORMANCE ^a

Typical application range	1.5 – 75 m
Detection range	250 m (> 30 m for 10 % reflectivity target, pixel-filling, 100 klux, 90 % detection rate, false positive rate < 0.2 %, 0.6° horizontal resolution)
Range resolution	< 1 cm
Maximum field-of-view (Horizontal x vertical)	70° x 30°
Vertical resolution	5 – 400 scan lines per frame ^b (user-configurable)
Horizontal resolution	0.4° – 1.0° (user-configurable)
Scan rate	> 500 scan lines per second
Frame rate	1.5 – 50 Hz (dependent on configured scan lines and vertical field-of-view) Examples: 70° x 30°, 200 scan lines, min. 2.5 Hz. 70° x 25°, 50 scan lines, min. 10 Hz. 70° x 10°, 20 scan lines, min. 25 Hz.
Number of returns	3 ^c

^a Measured at 25 °C, 60% humidity, single return.

^b For less than 26 scan lines a reduced vertical field-of-view must be configured (see frame rate).

^c Starting from a distance of 5 m. Only single returns at closer distances.

LASER

Laser class	Class 1, eye-safe (IEC 60825-1:2014, Ed. 3)
Wavelength	905 nm
Beam divergence	0.4° Examples: 10 m: 0.07 m x 0.07 m 50 m: 0.35 m x 0.35 m

OUTPUT

Connection	TCP/IP over Gigabit Ethernet
LiDAR output	Distance, intensity, and Cartesian coordinates per return; Azimuth angle, elevation angle, and timestamp in ns per acquisition
On-device data processing	Smart background subtraction and pose correction transformation; Filters: Distance, Noise, Intensity, Neighbor
IMU output	> 1 kHz sampling rate; 3 axis accelerometer, 3 axis gyroscope

CONTROL INTERFACE

Configuration interface	Cross-platform graphical web interface with interactive 3D point cloud visualization and recording feature
Control & stream interface	TCP connection with Blickfeld protocol; C++ library and Python package as client software interface; ROS drivers available on request
Time synchronization	NTPv4 and PTPv2 (IEEE 1588)

MECHANICAL / ELECTRICAL

Power consumption	Typ. 8.5 W (max. 15 W)
Operating voltage	Recommended: 12 V Absolute maximum ratings: Min: 10 V Max: 26 V
Dimensions (H x W x D)	60 mm x 82 mm x 50 mm
Weight	ca. 275 g
Data connector	Ethernet, RJ45
Power connector	Phoenix Contact 1817615 Compatible power supply connector: Phoenix Contact 1845219

OPERATIONAL

Operating air temperature (angle mount attached)	-30 °C – 60 °C
Storage temperature	-30 °C – 60 °C
Humidity	85 % at 30 °C, non-condensing

DIMENSIONS

