







Cube 1 Outdoor



All-environment sensing

The Blickfeld Cube 1 Outdoor provides high-quality data even in adverse environmental conditions such as rain, fog, and snow. The IP65-rated housing is specially designed for demanding applications that require a dust and waterproof sensing solution. With its Power over Ethernet capability and no need for clumsy adapter boxes, installation time and maintenance efforts are kept at a minimum.

DISTINCTIVE FEATURES

-  Configurable Scan Pattern
-  Easy Installation and Setup
-  Power over Ethernet
-  IP65-rated housing
-  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
Range precision	< 2 cm (bias free RMS, 10 m, 50% reflectivity target)
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 30°; 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 and ROS 2 drivers
Time synchronization	NTPv4 and PTPv2 (IEEE 1588)

MECHANICAL / ELECTRICAL

Power consumption	Typ. 9 W (max. 13 W)
Operating voltage	Power over Ethernet Type 1 (IEEE 802.3af): 37 – 57 V DC
Dimensions (H x W x D)	60 mm x 97 mm x 50 mm
Weight	ca. 330 g
Power and Data connector	M12x1 Industrial Ethernet connector, 8-pole, X-coded (DIN EN 61076-2-109)

OPERATIONAL

Ambient operating temperature (mounted)	-30 °C – 60 °C
Storage temperature	-30 °C – 60 °C
Humidity	85 % at 30 °C, non-condensing
Ingress Protection (IEC 60529)	IP65
Electromagnetic compatibility (EMC)	EN 61326-1:2013 FCC (47 CFR) Part 15 Subpart B
Conformity marks/Compliance	CE, RoHS, FDA, FCC, TAA

INCLUDED ACCESSORIES

Mounting angle	Provides a 1/4"-UNC threaded hole for mounting the Cube 1 to e.g. standard photography mounts Aluminium, black anodized
Industrial Ethernet cable	Outdoor capable Ethernet cable, shielded, Cat. 6 _a , UV-resistant, PUR, 3 m Connector A: 8-pin M12 Industrial Ethernet connector, X-coded (DIN EN 61076-2-109) Connector B: RJ45

RECOMMENDED ACCESSORIES AND PRODUCTS

Perception Software	Blickfeld Percept
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DIMENSIONS

