

OS1 REV 8

OS1 REV 8 Series

OS1-128-REV8

Ouster OS1 - Rev8 (RGB)

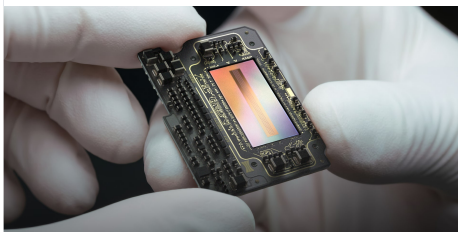


- View: 44° vertical, 360° horizontal, up to 40 Hz rotation and 4096 horizontal resolution (0.088°)
- Range: 90 m @ 10%, 170 m @ 80% reflectivity in 100 klx sunlight, max representable distance 250 m
- Native RGB colour: 48-bit, 116dB dynamic range, 1-2,000,000 lux, no calibration between colour and 3D
- Functional safety: ASIL-B, SIL-2, PLd, ISO 21434 cybersecurity, 3D Zone Monitor on the sensor
- Rugged: IP68/IP69K, -40 to +85°C, 100G shock, 10G-rms vibration, Class 1 eye-safe laser

PRODUCT DESCRIPTION

Native color mid-range lidar

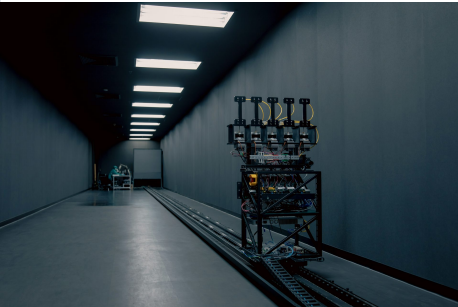
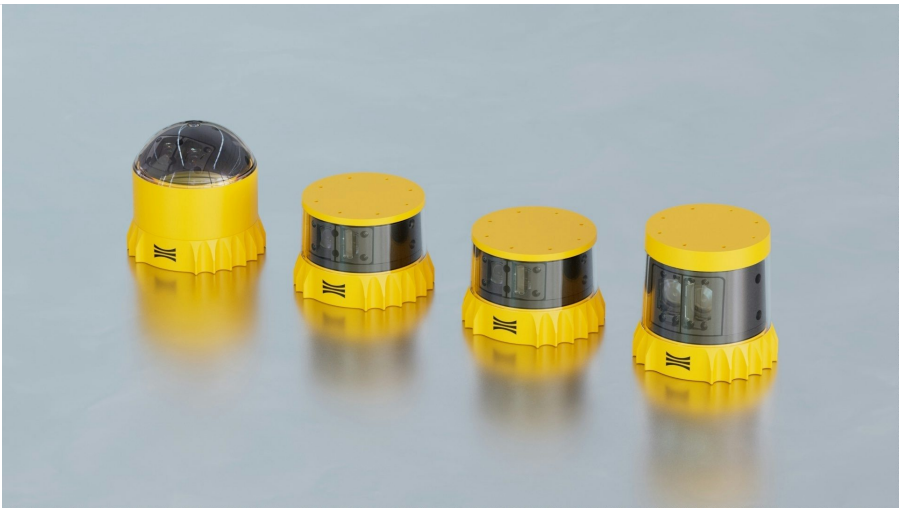
OS1 REV8 delivers 90 m range against a dark 10% target and 170 m against an 80% Lambertian target, combined with a 44° vertical field of view. Each point is born with both color and 3D data directly on the chip – no separate camera calibration is required. The sensor is designed for industrial automation, autonomous vehicles, mapping, smart infrastructure and robotics.



2x resolution, 2x precision

Choose 32, 64 or 128 channels vertically, horizontal resolution of 512/1024/2048/4096 points (down to 0.088° angular resolution) and rotation from 5 to 40 Hz. Up to 5.2 million points per second with 0.1 cm distance resolution and twice the precision and accuracy of REV7. 48-bit RGB with 116 dB dynamic range maintains consistent quality from 1 lux to 2,000,000 lux.

Functional safety and edge-ready integration
ASIL-B (ISO 26262), SIL-2 (IEC 61508) and PLd (ISO 13849) in alternative configuration, with built-in 3D Zone Monitor directly on the sensor.
Cybersecurity according to ISO 21434, UNECE WP.29 R155 and IEC 62443. Integrated IMU with 2560 Hz sampling, IEEE 1588 PTP/gPTP, NMEA \$GPRMC and External PPS. UDP over 1000BASE-T and Ousters SDK with C++/ROS drivers.



The most rugged 3D lidar sensors ever built
The housing is rated IP68 and IP69K, can operate between -40 °C and +85 °C and meets 100 G shock according to IEC 60068-2-27 and 10 G-rms vibration according to IEC 60068-2-64 / ISO-16750-3 Test VII. Class 1 eye-safe laser according to IEC/EN 60825-1:2014. CE, UKCA and FCC certified as well as UL 62368-1 (4th Ed.) and CSA C22.2 No. 62368-1-25. Planned 10-year production life cycle.

TECHNICAL DATA

Accuracy	±1.25 cm (lambertian), ±2.5 cm (retroreflektivt)
Ambient light max	2000000 lx
Angular measurement accuracy	0.01 °
Angular resolution	0.4 °
Beam diameter at sensor output	9.5 mm
Beam divergence	0.18 °
Data latency	10 ms
Data profiles	Single, Dual, Low Data Rate
Data rate per profile	2360 Mbit/s
Detector technology	SPAD
Distance resolution	1 mm
Field of view (L)	44 °
Field of view (R)	360 °
Frame rate	40 fps
Frame rate max	40 fps
Horizontal resolution	4096
IMU latency	10 ms

IMU sampling rate	2.56 kHz
IMU timestamp resolution	1 µs
Interface	GigE
IP class	IP68, IP69K
Laser class	Class 1
Minimum range	0 m
Operating temperature from	-40 °C
Operating temperature to	85 °C
Points per second	5242880
Power consumption	15 W
Precision (σ) min/max	±0.25 cm (min) / ±1.5 cm (max)
Protocol Lidar Data	1000BASE-T
Range	90 m @ 10 % reflektivitet, 170 m @ 80 % reflektivitet (1024×10 Hz, 100 klx solljus, >90 % detektionssannolikhet)
Range resolution	0.1 cm
Rotation speed	40 Hz
Scanning principle	Flash
Storage temperature max	105 °C
Storage temperature min	-40 °C
Time synchronization – inputs	PTP, gPTP, NMEA \$GPRMC, External PPS
Time synchronization – outputs	60 Hz
Timestamp resolution	1 µs
Wavelength	865 Nm
Weight	500 g