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OS1 REV7

OS1 REV 7 Series

OS1-32
32 channels / 1.3 Mpts/s / 42.4° V × 360° H / 90 m @ 10% / 9.5–51 V DC



- The right balance of range and detail – 90 m @ 10% and 200 m max for safety, ITS and mapping.
- High data density – up to 5.24 M dots/s and 128 channels for sharp point clouds.
- Robust in the real world – IP68/IP69K, -40...+60 °C, long service life (MTTF ≥ 250,000 h).
- Fast integration – GbE/UDP, IMU, gPTP/PTP, out-of-the-box SDK/ROS and Ouster Studio.
- REV7/L3 chip – improved performance and data quality compared to previous generations.

PRODUCT DESCRIPTION

The OS1 all-weather mid-range lidar
delivers 90 m range against a dark 10% target and 170 m against an 80% Lambertian target, combined with a 42.4° vertical field of view. The sensor is designed for industrial automation, autonomous vehicles, mapping, smart infrastructure and robotics.

Edge-ready integration
Integrated IMU, IEEE 1588 PTP/gPTP, NMEA $GPRMC and External PPS for time synchronization. UDP over Gigabit Ethernet (1000BASE-T or 1000BASE-T1) and Ouster's SDK with C++/ROS drivers. Multi-sensor phase lock and crosstalk suppression allow multiple devices to run in parallel without interference.

Configurable resolution
Choose 32, 64 or 128 channels vertically, horizontal resolution of 512/1024/2048 points and 10 or 20 Hz rotation. Up to 5.2 million points per second with 0.1 cm distance resolution provides camera-like NIR and signal data.

All-weather rugged
The housing is rated IP68 and IP69K, can operate between -40 °C and +60 °C and meets shock/vibration requirements according to IEC 60068-2-27/-64. Class 1 eye-safe laser according to IEC/EN 60825-1:2014. CE, UKCA and FCC certified as well as UL 62368-1 and UL 60950-22 (outdoor use).

TECHNICAL DATA

Accuracy	±2,5 cm (lambert) / ±5 cm (retroreflektiv)
Ambient light max	100000 lx
Angular measurement accuracy	0.01 °
Angular resolution	1.3 °
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	346 Mbit/s
Detector technology	SPAD

Distance resolution	1 mm
False positive rate	10000
Field of view (L)	42.4 °
Field of view (R)	360 °
Frame rate	20 fps
Frame rate max	20 fps
Horizontal resolution	2048
IMU latency	10 ms
IMU sampling rate	0.1 kHz
IMU timestamp resolution	1 µs
Interface	GigE
IP class	IP68, IP69K
Laser class	Class 1
Minimum range	0.5 m
MTTF	250000 h
Operating temperature from	-40 °C
Operating temperature to	60 °C
Points per second	1310720
Power consumption	16 W
Precision (σ) min/max	±0,5 cm / ±3 cm
Protocol Lidar Data	1000BASE-T, 1000BASE-T1
Range	170 m @ 100 klx (80%) / 90 m @ 100 klx (10%)
Range resolution	0.1 cm
Rotation speed	20 Hz
Scanning principle	Flash
Storage temperature max	85 °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	430 g