

LIDAR PAYLOAD

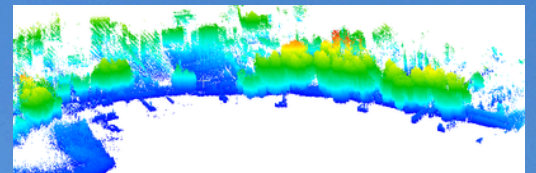
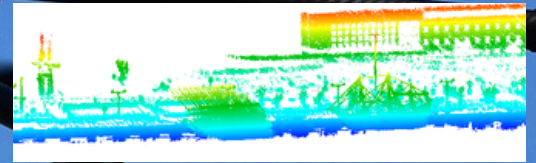
PORTABLE LIDAR SOLUTION FOR TOPOGRAPHIC, AERIAL, AND MARINE SURVEYING

LiDAR Payload Information

LiDAR Payload is a complete, portable solution for topographic surveying using LiDAR technology, designed for data collection and processing. Our device is platform-independent and highly durable; thanks to its IP67-rated housing, it is suitable for use on ships or in any surveying environment. Through the tight integration of LiDAR and GNSS sensors in our device, we ensure easy and fast access to accurate data. Our cost-effective, comprehensive solution meets all LiDAR measurement needs—from survey planning to data processing. The device is custom-built according to the customer's specifications.

Key Features

- A fully autonomous LiDAR data collection unit with GNSS-assisted inertial navigation
- Fixed offsets enable precise sensor calibration
- Can be mounted on any vehicle platform, including unmanned aerial vehicles (UAVs)
- Total weight: 3.5 kg
- Real-time display of images and point clouds



What the LiDAR Payload Includes

- Ouster OS1-32 LiDAR unit or any other LiDAR unit
- Integrated compact SBG Ellipse-D Marine INS inertial navigation system
- Survey-grade GNSS RTK receiver with dual antennas
- Built-in battery providing 3 hours of operation
- Computer running Windows 11
- Pre-installed HYPACK system



LiDAR Payload Specifications

The ability to install any LiDAR, including the customer's LiDAR

Total system uncertainty (accuracy)

- Miniature MEMS inertial system with built-in dual GNSS receiver
- 450°/s, 8 g, RS-232/422 interface (no CAN)
- GPS/GLO/GAL/BDS, L1/L2, RTK, raw data
- Vertical motion measurement (5 cm)

PC: EMBC-5000-1185G7E or a similar single-board computer model

- Fanless 3.5" single-board computer (SBC)
- Intel® Core™ i7-1185G7E processor, up to 32 GB of DDR4 SODIMM RAM (1 slot)
- Front I/O ports: 2x DisplayPort, 4x USB, 2x RJ45 LAN
- Internal I/O ports: 4x RS-232/422/485, SIM, LVDS, 2x SATA III
- 1x M.2 Key B 2260, 1x M.2 Key B slot (3042/3050), 1x M.2 Key E slot (2230)
- DC power supply from 9 V to 55 V (4-pin ATX power connector)
- Dimensions: 146.0 mm x 102.0 mm x 17.5 mm
- Wide operating temperature range: -40°C to 85°C
- High-speed hard drive for data processing
- Supports USB, Ethernet, and DisplayPort connections

LiDAR: Ouster OS1-32

- Vertical resolution: 64 or 128 channels
- Maximum range: 200 m
- Nominal range: 90 m
- Minimum range: 0.5 m
- Accuracy: ± 0.5 cm – ± 5 cm
- Vertical field of view: 45°
- Vertical resolution: 0.7° (64-channel version), 0.35° (128-channel version)
- Horizontal field of view: 360°
- Horizontal resolution: 0.18°
- Refresh rate: 10 or 20 Hz
- Protection rating: IP68, IP69K
- Time synchronization: gPTP, PTP, SGMRC
- Built-in IMU
- Power supply: 24 V (14–20 W)
- 16-channel LiDAR module with dual feedback
- Weight: 590 grams

GNSS / Inertial Navigation

System: SBG Ellipse 2-D

- Roll / Pitch: 0.1°
- Heading: 0.2°
- Velocity: 0.03 m/s
- Position – single point L1/L2: 1.2 m
- SBAS: 0.6 m
- DGPS: 0.4 m
- GLONASS (optional)
- RTK: 2 cm – 3 cm via NTRIP or radio communication
- PPK: using Qintertia

