RESEPI™ OUSTER OS1-64

RESEPI Overview

RESEPI™ (Remote Sensing Payload Instrument) is a sensor-fusion platform designed for accuracy-focused remote sensing applications. RESEPI utilizes a high-performance Inertial Labs INS (GPS-Aided Inertial Navigation System) with a tactical-grade IMU and a high-accuracy single or dual-antenna GNSS receiver, integrated with a Linux-based processing core and data-logging software. The platform also provides a WiFi interface, optional imaging module, and external cellular modem for RTCM corrections. RESEPI can be operated by a single hardware button or from a wirelessly connected device via a simple web interface.

RESEPI WITH OUSTER OS1-64

RESEPI, equipped with the OUSTER OS1-64 REV7 LiDAR, is one of the latest offerings from Inertial Labs and one of the most unique and powerful in nature. This lightweight LiDAR features multiple scanning modes and operational workflows that allow users to control their collection procedures and accuracy. With an extended vertical FOV of 45° and compact design, you can be confident that your projects can be completed with minimal time spent in data collection.

Applications

The RESEPI OS1-64 was strategically designed for multiple application bases with mounting options for mobile vehicles, DJI-supported drones (DJI M300, M600 Pro), custom drones, handheld platforms, vehicles, the Freefly Alta-X, and many more. Because of this diverse mounting portfolio, the RESEPI can be used for many services, including utilities mapping (power lines), construction volumetrics, site surveying, precision agriculture, forestry, mining operations, and much more.

System

System Vertical Accuracy	3 - 5 cm[1]
Precision	4 - 6 cm[2]
Precision (1σ Noise Removal)	2 - 4 cm [3]
Recommended AGL	Up to 100 m
Weight	1.4 kg (with camera), 1.0 kg (without camera)
Dimensions	20.6 x 16.5 x 14.2 (cm)
Max Flight Time (DJI M300)	33 minutes
External Storage	256 GB USB Included
System Computer	Quad Core, 1GB RAM, 8GB eMMC
Operational Voltage Range	9-45V
Power Consumption	17W

About Inertial Labs

Inertial Labs is at the forefront of developing and manufacturing position and orientation technologies for the commercial sector, government, defense, and aerospace. Inertial Labs' product catalog includes Inertial Measurement Units (IMU), Inertial Navigation Systems (INS), Motion Reference Units (MRU), and Wave Sensors (WS) along with RESEPI, our LiDAR scanning and mapping package. We supply solutions for land, sea, and air to exacting customers from some of the largest organizations in the world.

LiDAR

Laser Range Capabilities	90m @ 10% ref. (all channels); 0.5 to 200m[4]
Range Accuracy	+/- 2.5 cm[5]
FOV (Horizontal)	360°
FOV (Vertical)	45°
Scan Angle (Vertical)	-22.5° to 22.5°
Beam Divergence	0.18° (H), 0.18°(V)[6]
Number of Laser	64
Number of Returns	2
Pulse Rate	2,621k/s (dual return)

Camera

Model	24MP RGB Mapping Camera
Lens	Sony E-Mount 16mm, 70° FOV
Max Trigger Rate	2 seconds
External Camera Support	Yes[7]

Software

Field Checks	Yes, Included
Pre-Processing	Yes, Included
Post-Processing	Yes, Supported

GPS-Aided INS

GPS-Aided Inertial Navigation System

IMU	Inertial Labs Tactical Grade IMU-P
GNSS	Single or Dual Antenna
Constellations	GPS, GLONASS, Galileo, BeiDou, QZSS, NavIC (IRNSS), SBAS, L-Band[8]
Frequencies	L1, L2, L5[9]
Operation Modes	RTK and PPK
Output Rates	Up to 200Hz (INS); Up to 2,000Hz (IMU)
Pitch/Roll Accuracy	0.03° (RTK); 0.006° (PPK)[10]
Heading Accuracy	0.15° (RTK); 0.03 (PPK)[11]
Velocity Accuracy	<0.03 m/s
Position Accuracy	1cm + 1ppm (RTK); 0.5cm (PPK)

[1][2]Single Pass, 50m AGL, 5m/s, Nadir, Values Based on Inertial Labs Test Conditions.

[3]Single Pass, 50m AGL, 5m/s, Nadir, Single Noise Removal, Values Based on Inertial Labs Test Conditions.

[4]1024 @ 10 Hz Mode.

[5]Accuracy is calculated based on the error between the mean of 100 measurements on static target at a given range and the true range.

[6]Varies by measurement range.

[7]For select models.

[8][9]Maximum available; dependent on receiver configuration.

[10]Dynamic accuracy is dependent on type of motion.

[11]Dynamic accuracy is dependent on type of motion; RTK with a 1-meter baseline.