



## RESEPI™ LITE QUANERGY M8-PLUS



### 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.

### System

System Vertical Accuracy	5 - 10 cm <sup>(1)</sup>
Recommended AGL	Up to 100 m
Weight	1.8 kg (with camera), 1.4 kg (without camera)
Dimensions	21.9 x 15.2 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	23W

### Software

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

### RESEPI WITH QUANERGY M8-PLUS

RESEPI, equipped with QUANERGY'S M8-PLUS LiDAR, offers the best price-to-performance ratio in class for point density and range, allowing users to benefit from a wide range of operational modes, primarily in applications requiring clear feature distinction.

### Applications

The RESEPI with QUANERGY's M8-Plus LiDAR offers a system that has well-rounded performance and operational ranges of up to 100 m and great point density. This system 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 and its 360 FOV; the RESEPI LITE M8-PLUS can be used for many services, including utility mapping (power lines), construction volumetrics, site surveying, precision agriculture, forestry, mining operations, and much more.

## 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	53m @ 10% ref. (all channels); 150m @ 80% ref. (all channels); 0.5 to 200m
Range Accuracy	+/- 3 cm <sup>(2)</sup>
FOV (Horizontal)	360°
FOV (Vertical)	20°
Scan Angle (Vertical)	-17° to 3°
Beam Divergence	NA
Number of Laser	8
Number of Returns	3
Pulse Rate	430k/s (single return); 1300k/s (triple return)

## Camera

Model	24MP RGB Mapping Camera
Lens	Sony E-Mount 16mm, 70° FOV
Max Trigger Rate	2 seconds
External Camera Support	Yes <sup>(3)</sup>

<sup>(1)</sup>(1) Single Pass, 50m AGL, 5m/s, Nadir, Values Based on Inertial Labs Test Conditions.

<sup>(2)</sup>1σ at 50m.

<sup>(3)</sup>For select models.

<sup>(4)</sup> <sup>(5)</sup>Maximum available; dependent on receiver configuration.

<sup>(6)</sup>Dynamic accuracy is dependent on type of motion.

<sup>(7)</sup>Dynamic accuracy is dependent on type of motion; RTK with a 1-meter baseline.

## GPS-Aided INS

### GPS-Aided Inertial Navigation System

GNSS	Single or Dual Antenna
Constellations	GPS, GLONASS, Galileo, BeiDou, QZSS, NavIC (IRNSS), SBAS, L-Band <sup>(4)</sup>
Frequencies	L1, L2, L5 <sup>(5)</sup>
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) <sup>(6)</sup>
Heading Accuracy	0.15° (RTK); 0.03° (PPK) <sup>(7)</sup>
Velocity Accuracy	<0.03 m/s
Position Accuracy	1cm + 1ppm (RTK); 0.5cm (PPK)

## Inertial Measurement Unit

IMU Type	Inertial Labs Kernel
<b>Accelerometer</b>	
Bias in-run stability (Allan Variance)	0.02 mg, 1σ
Noise. Velocity Random Walk (VRW)	0.045 m/sec/√hr, 1σ
Scale Factor (STD, over temperature range)	100 ppm, 1σ
<b>Gyroscope</b>	
Bias in-run stability (Allan Variance)	2 deg/hr, 1σ
Noise. Angle Random Walk (ARW)	0.23 deg/√hr, 1σ
Scale Factor (STD, over temperature range)	600 ppm, 1σ

