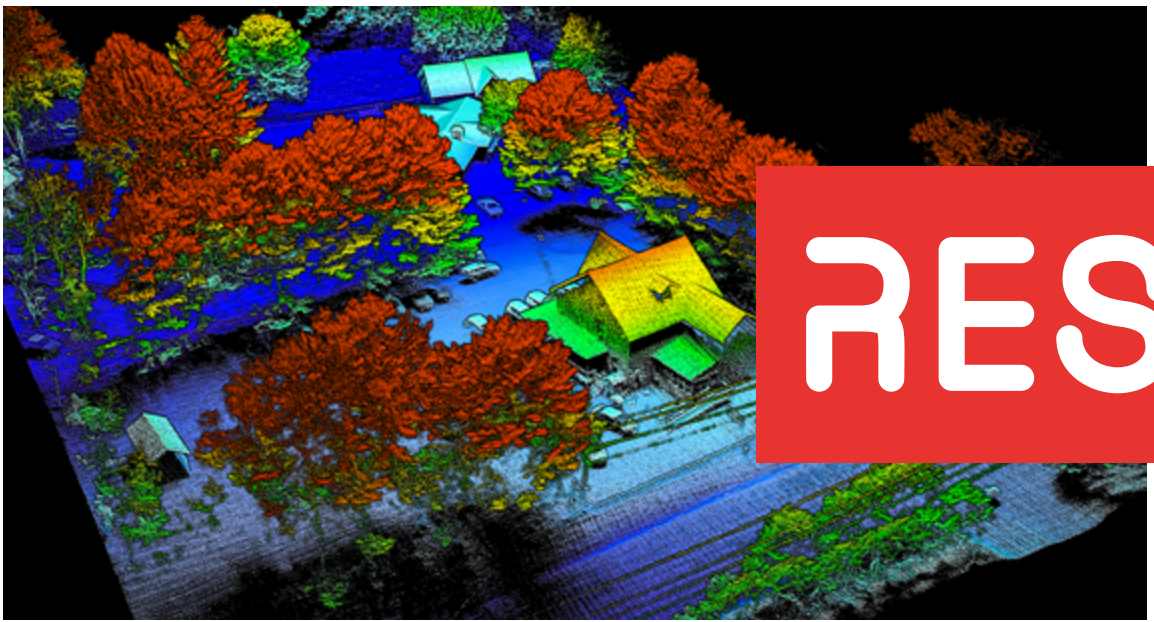
PRODUCT
BROCHURE

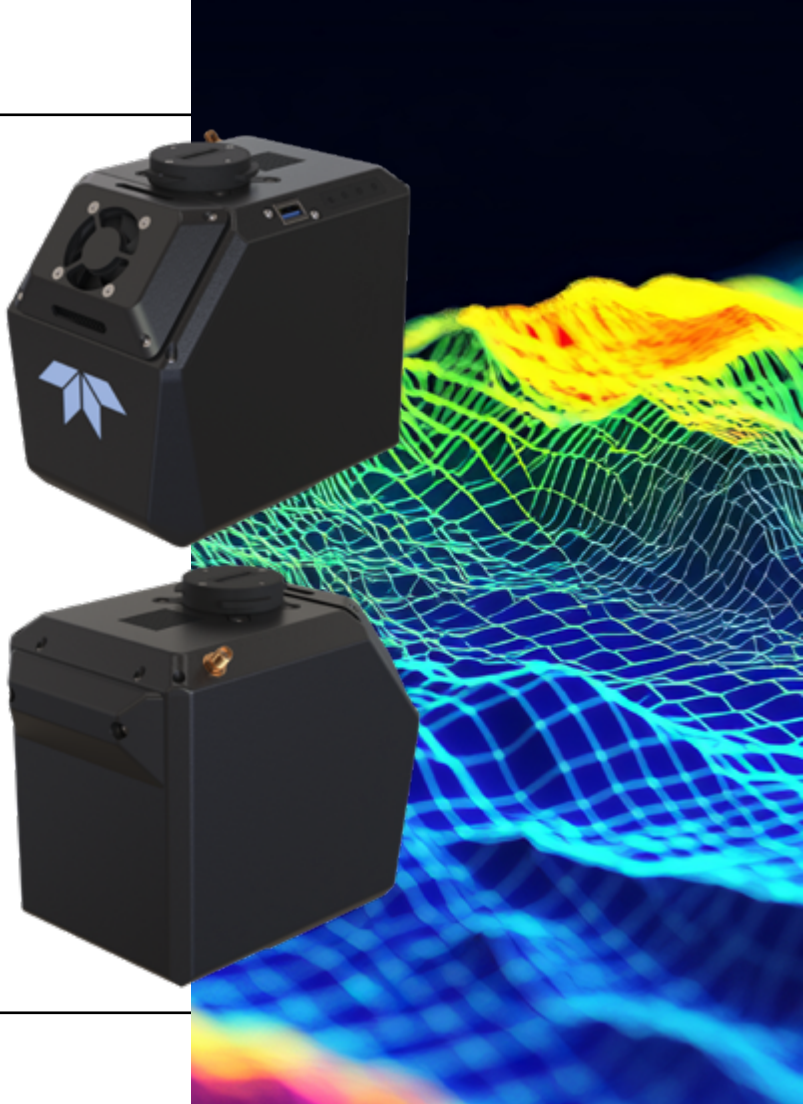


RESEPI™

www.lidarpayload.com

TELEDYNE EchoONE

System Accuracy	1.5 cm RMSEZ @ 120 m
Example Area Coverage	814 acres / 329 ha
Range Accuracy/Precision, 1σ	10 mm / 5 mm
Recommended AGL	Up to 175 m
Weight	1.65 kg
Dimensions	17 x 14.4 x 11 cm
Max Flight Time (DJI M350)	33 minutes
Storage	Internal 512GB SSD and Removable USB
System Computer	Powered by RESEPI
Power Consumption	Up to 85W, 9-50V
Compliance	IP54, CE, RoHS, WEEE, REACH, NDAA
Camera	Embedded 5MP, External 61 MP



LiDAR Scanning & Mapping Solution

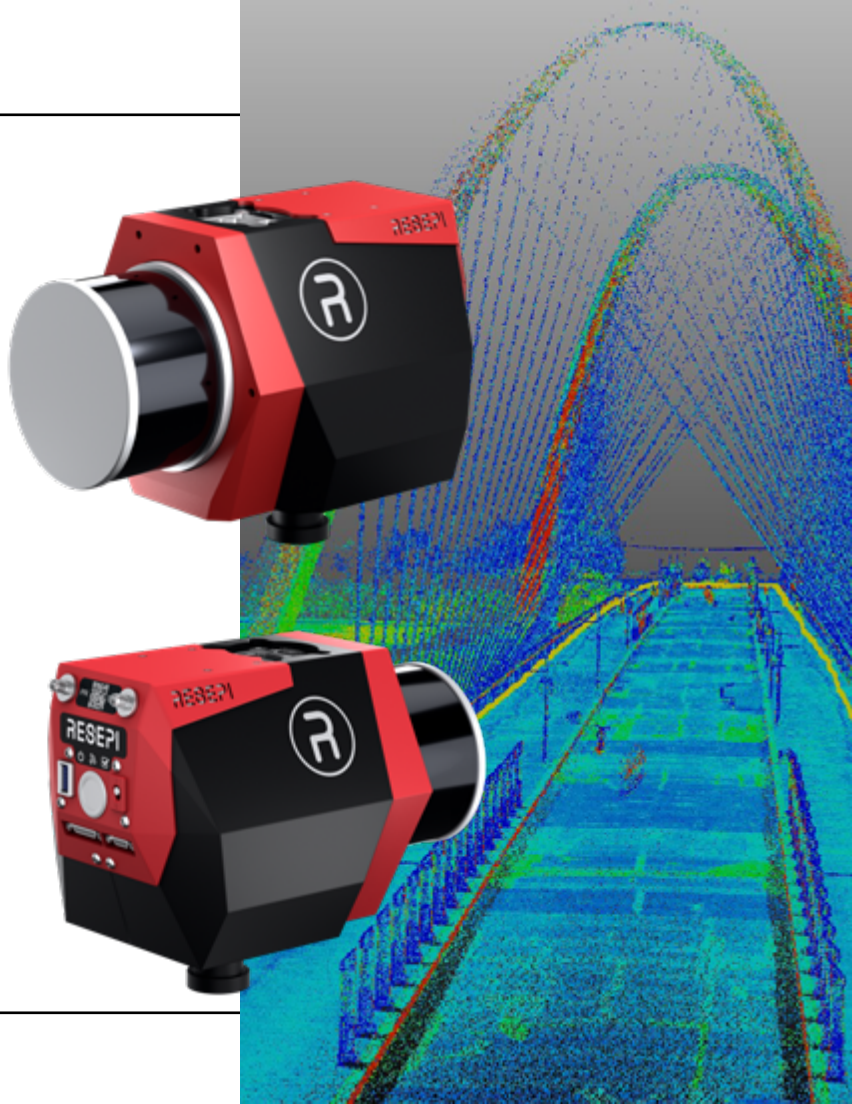
RESEPI™ GEN-II
OS1-ILX

System Vertical Accuracy	3 - 5 cm
Precision	4 - 6 cm
Precision (1σ Noise Removal)	2 - 4 cm
Recommended AGL	Up to 75 m
Weight	1.7 kg
Dimensions	21.3 x 17.8 x 13 cm
Max Flight Time (DJI M350)	33 minutes
Internal Storage	512GB SSD
System Computer	Hexacore, 8GB DDR4 RAM, 16GB eMMC,
Operational Voltage Range	9-50V
Power Consumption	29 W
Camera	61MP Sony ILX-LR1

LiDAR Scanning & Mapping Solution

RESEPI™ GEN-II
M2X-ILX

System Vertical Accuracy	2 - 3 cm
Precision	2 - 4 cm
Precision (1σ Noise Removal)	1.5 - 2.5 cm
Recommended AGL	Up to 150 m
Weight	1.7 kg
Dimensions	21.6 x 17.8 x 13 cm
Max Flight Time (DJI M350)	33 minutes
Internal Storage	512GB SSD
System Computer	Hexacore, 8GB DDR4 RAM, 16GB eMMC,
Operational Voltage Range	9-50V
Power Consumption	25 W
Camera	61MP Sony ILX-LR1



LiDAR Scanning & Mapping Solution

RESEPI™
ULTRA LITE

System Vertical Accuracy	2 - 3 cm
Precision	2 - 4 cm
Precision (1σ Noise Removal)	1.5 - 2.5 cm
Recommended AGL	Up to 100 m
Weight	1.2 kg
Dimensions	13.1 x 11.2 x 10.3 cm
Max Flight Time (DJI M350)	35 minutes
Internal Storage	256GB USB
System Computer	Quad Core, 1GB RAM, 8GB eMMC
Operational Voltage Range	9-45V
Power Consumption	14.5 W
Camera	5MP Colorization Camera

LiDAR Scanning & Mapping Solution

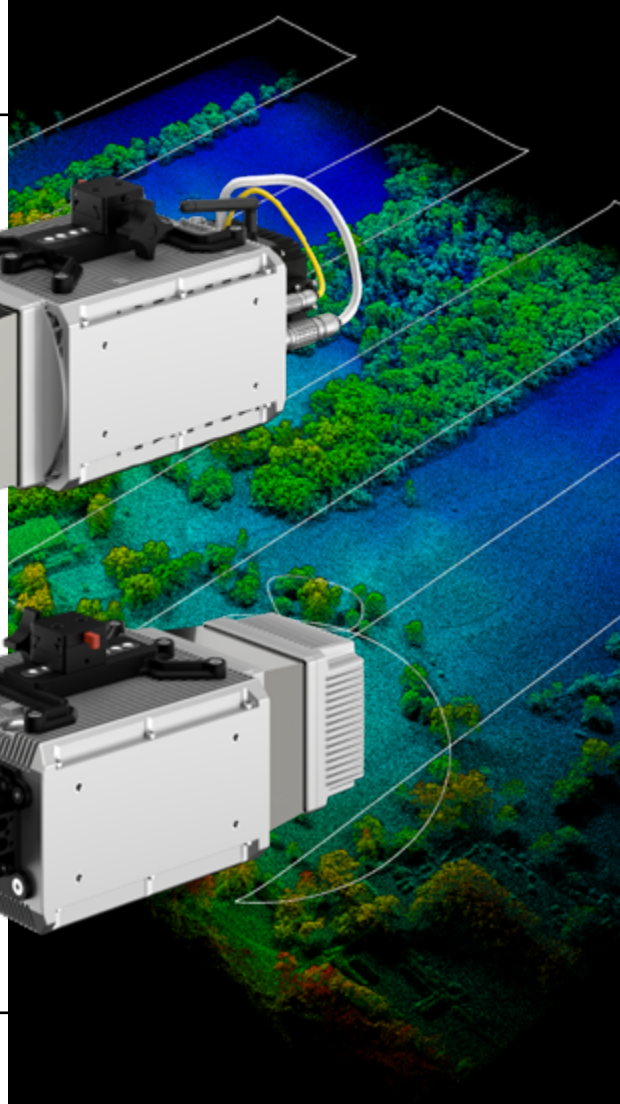
RESEPI™ LITE
OUSTER OS1-64

System Vertical Accuracy	3 - 5 cm
Precision	4 - 6 cm
Precision (1σ Noise Removal)	2 - 4 cm
Recommended AGL	Up to 75 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 M350)	33 minutes
External Storage	256 GB USB Included
System Computer	Quad Core, 1GB RAM, 8GB eMMC
Operational Voltage Range	9-45V
Power Consumption	23 W
Camera	24MP Mapping Camera

LiDAR Scanning & Mapping Solution

RESEPI™ LITE
TELEDYNE OPTECH CL-360HD

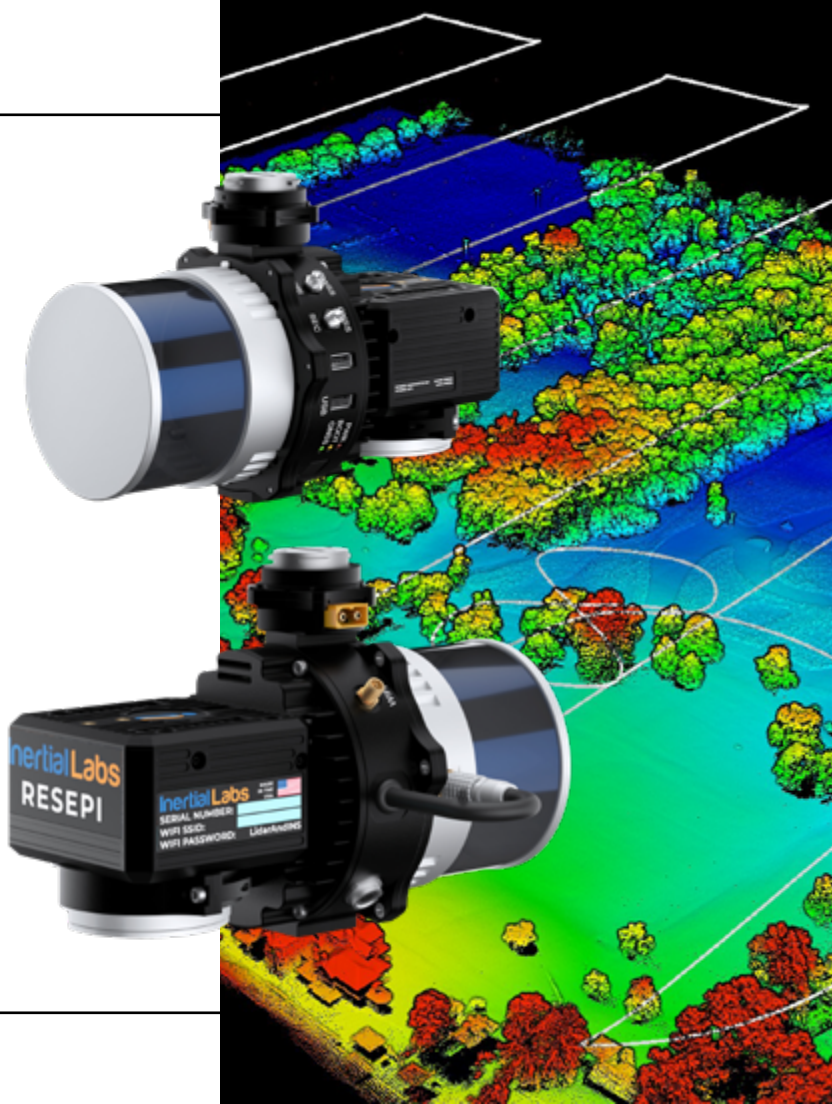
System Vertical Accuracy	1 - 2 cm
Precision	1 - 2 cm
Precision (1σ Noise Removal)	1 - 2 cm
Recommended AGL	Up to 200 m
Weight	4.3 kg (without camera)
Dimensions	36.9 x 16 x 15.5 cm
Max Flight Time (DJI M350)	23 minutes (TB48S batteries)
External Storage	256GB USB Included
System Computer	Quad Core, 1GB RAM, 8GB eMMC
Operational Voltage Range	9-36V
Power Consumption	42 W (@ 100 Hz); 47 W (@ 250 Hz)



LiDAR Scanning & Mapping Solution

RESEPI™ LITE
XT-32M2X

System Vertical Accuracy	2 - 3 cm
Precision	2 - 4 cm
Precision (1σ Noise Removal)	1.5 - 2.5 cm
Recommended AGL	Up to 150 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 M350)	33 minutes
External Storage	256 GB USB Included
System Computer	Quad Core, 1GB RAM, 8GB eMMC
Operational Voltage Range	9-45V
Power Consumption	23 W
Camera	24MP Mapping Camera



LiDAR Scanning & Mapping Solution

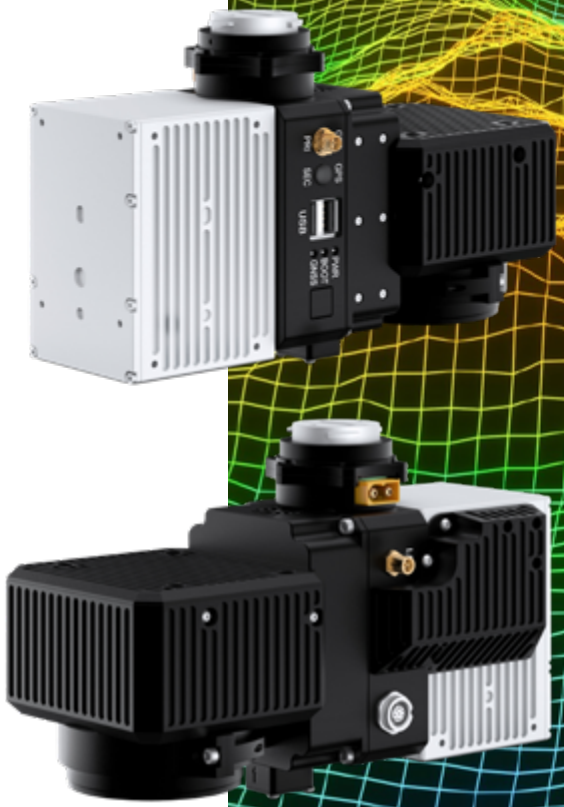
RESEPI™ LITE
XT-32

System Vertical Accuracy	2 - 3 cm
Precision	2 - 4 cm
Precision (1σ Noise Removal)	1.5 - 2.5 cm
Recommended AGL	Up to 100 m
Weight	1.7 kg (with camera), 1.3 kg (without camera)
Dimensions	20.8 x 17 x 14.2 cm
Max Flight Time (DJI M350)	33 minutes
External Storage	256 GB USB Included
System Computer	Quad Core, 1GB RAM, 8GB eMMC
Operational Voltage Range	9-45V
Power Consumption	17 W
Camera	24MP Mapping Camera

LiDAR Scanning & Mapping Solution

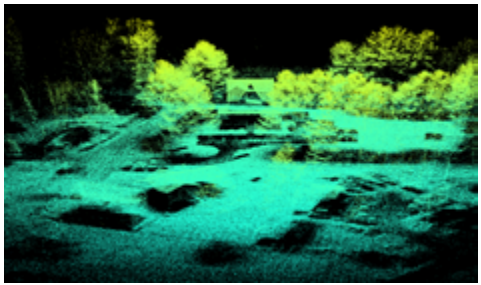
RESEPI™ LITE
LIVOX AVIA

System Vertical Accuracy	3 - 5 cm
Precision	4 - 5 cm
Precision (1σ Noise Removal)	2 - 3 cm
Recommended AGL	Up to 85 m
Weight	1.2 kg (with camera), 0.9 kg (without camera)
Dimensions	20 x 13 x 9.2 cm
Max Flight Time (DJI M350)	33 minutes
External Storage	256 GB USB Included
System Computer	Quad Core, 1GB RAM, 8GB eMMC
Operational Voltage Range	9-45V
Power Consumption	16 W
Camera	24MP Mapping Camera



LiDAR Scanning & Mapping Solution

USE CASES FOR THE RESEPI

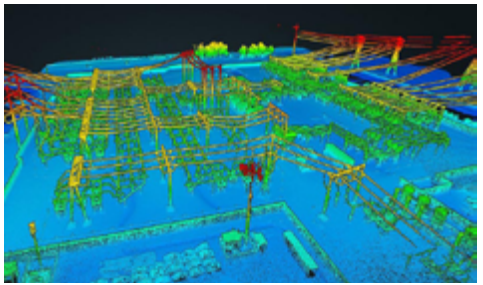


REMOTE SENSING WITH LIDAR

Sometimes called a 3D laser scanner, LiDAR is a surveying method that measures the distance to a target by illuminating the target with pulsed laser light and measuring the reflected pulses with a sensor. It has terrestrial, airborne, and mobile applications. Some models of 3D automotive LiDAR (used in cost effective aerial mapping) can generate up to 1,920,000 points per second. There are plenty of exceptional producers on the market, for example, Quanergy® and Velodyne®.

SCANNING AND MAPPING

Perhaps area mapping is still the most significant domain for remote sensing. Making sense of the physical world by analyzing maps and 3D models allows businesses to make faster and more informed decisions that increase efficiency and profit and, more importantly, improve safety. A few of the most often used bases can be on our land vehicles or Unmanned Aerial Vehicles (UAV).



UTILITY INSPECTION

Drones equipped with LiDAR and Photogrammetry technology are a much cheaper and safer option when compared to other aerial scanning methods or manual inspection. With innovative LiDAR and Photogrammetry algorithms, users can reconstruct utilities and identify potential hazards and damages.

SIMULTANEOUS LOCALIZATION AND MAPPING (SLAM) ALGORITHM DEVELOPMENT

RESEPI can generate a point cloud in real time. This feature, aiding imagery from other optical sources such as RGB and thermal cameras, can lay the foundation for SLAM algorithm development.

CONSTRUCTION SITE MONITORING

Drones equipped with RGB cameras and LiDAR technology enable construction companies to monitor project progress regularly. In addition, LiDAR point cloud color schemes are a helpful tool for the visualization of elevation, which makes 3D analysis of the ground and structures much more accessible.

PRECISION AGRICULTURE WITH LIDAR

LiDAR technology is instrumental in developing 3D farmland models, aiding crop planning, and producing accurate maps of natural resources. In addition, it can be used in crop yield forecasting, field management, land segmentation, and determination of soil type.

COMPARATIVE TABLE

	GEN-II	LITE	ULTRA LITE
	Powered by Gen-II Core, this is the most advanced RESEPI solution designed to meet the needs of demanding mapping and survey professionals today, tomorrow, and beyond.	*With a vast number of units being utilized across the globe, RESEPI Lite has become the solution trusted by professionals for tackling challenging projects that demand quality, reliability, and efficiency.*	*Built on the robust Gen-I architecture, RESEPI Ultra Lite is the best Low-SWoP and most versatile Lidar solution offering an extraordinary value with uncompromised quality and performance.*
Technology Architecture	RESEPI GEN-II	RESEPI LITE	RESEPI LITE
Available Laser Scanner	Ouster OS1-64 M2X	Teledyne CL-360HD Ouster OS1-64 Velodyne VLP-32 M2X XT32 Livox Avia	XT32
RGB Camera Option	Sony ILX-LR1 61MP	Sony A5100 OEM 24MP	OEM 5MP
System Accuracy (max. achievable)	2 cm	2 cm	2 cm

	GEN-II	LITE	ULTRA LITE
Data Internal Precision (max. achievable)	2 cm	2 cm	2 cm
Flex Configuration	✓	✓	
Sensor Expansion	✓		
Real-time Protocol	✓		
Dual-Antenna	✓	✓	
MMS	✓	✓	✓
SLAM	✓	✓	✓
Backpack / Handheld Kit	✓	✓	✓
Onboard Storage (SSD)	✓		
External Data Comm (MAVLink, DJI PSDK)	✓		
RESEPI SnapFit Interface	✓		✓
Weight	1.7 kg	0.9 ~ 4.3 kg	1.2 kg

RECOMMENDED DRONES

WISPR Ranger Pro 1100

Sony Airpeak S1

Freefly Astro

Freefly Alta X

DJI Matrice 350

DJI Matrice 300

RESEPI

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.

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MADE IN USA

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