

RESEPI™ HESAI XT-32M2X



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 dual-antenna GNSS receiver, integrated with a Linux-based processing core and datalogging 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 XT-32M2X

RESEPI XT-32M2X makes use of Hesai's enhanced M2X LiDAR scanner which features lighter weight and extended detection over the XT-32 LiDAR. This enables an M2X equipped RESEPI to fly longer, combined with a higher recommended AGL and wider vertical FOV to more effectively map larger areas and sites with dense vegetation cover. It is all-around a very attractive system, offering the benefits of best-in-class data accuracy, better detection range, high point density, and versatility.

Applications

The RESEPI XT-32M2X 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 (powerlines), construction volumetrics, site surveying, precision agriculture, forestry, mining operations, and much more.



System

System Vertical Accuracy (5m/s @ 50m)	±3cm
Recommended AGL	50-100m
Weight	1.23kg (with camera)
	.87kg (without camera)
Dimensions	20.8x14.8x15.2 (cm)
Max Flight Time (DJI M300)	35 Minutes
External Storage	256GB USB Included

About Inertial Labs

Inertial Labs is at the forefront of the development and manufacture of 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	80m @ 10% (all channels) 0.5 - 300m
Range Accuracy	±1cm
FOV (Horizontal)	360°
FOV (Vertical)	40.3°
Scan Angle (Vertical)	-20.8° to 19.5°
Beam Divergence	0.21° (H), 0.047° (V) ⁽¹⁾
Number of Laser	32
Number of Returns	3
Pulse Rate	640k/s (single return) 1280k/s (double return) 1920k/s (triple return)

Camera

Model	ADTi 24MP RGB
Lens	Sony E-Mount 16mm, 70° FOV
Max Trigger Rate	2 seconds

GPS-Aided INS

GPS-Aided Inertial Navigation System	
IMU	Inertial Labs Tactical Grade IMU-P
GNSS	Single/Dual Antenna NovAtel OEM7720 or uBlox ZED-F9P
Constellations	GPS, GLONASS, BEIDOU, GALILEO
Output Rates	Up to 200HZ (INS) Up to 2,000HZ (IMU)
Pitch/Roll Accuracy	0.03 (RTK) ⁽²⁾ 0.006 (PPK)
Heading Accuracy	0.15 (RTK) ^(2,3) 0.03 (PPK)
Velocity Accuracy	<0.03 m/s
Position Accuracy	1cm+1ppm (RTK) 0.5cm (PPK)

¹ Varies by measurement range.
² Dynamic accuracy is dependent on type of motion.
³ With a 1-meter baseline.

