

Specification

LiDAR System R1000 II Series			
Model Code	R1000UAV	R1000LR	R1000HA
Preferred Application	best in aerial mode	best in aerial mode	best in automotive mode
Power Consumption	typical 80 W	typical 85 W	typical 85 W
Input Voltage	12-30V DC		
Temperature Range	0°C up to +40°C (operation); -20°C up to +50°C (storage)		
Dimension (LxWxH)	272 x 209 x 129 mm		
Net Weight (w/o camera)	approx. 4 kg / 4.25 kg (without/with cooling fan)		
Part I : Laser Scanner			
Model Code	R1000UAV	R1000LR	R1000HA
Scanner Sensor	Riegl VUX-1UAV	Riegl VUX-1LR	Riegl VUX-1HA
Laser Pulse Repetition Rate	up to 550 kHz	up to 820 kHz	up to 1,000 kHz
Measuring Range (natural targets p≥ 80 %)	1050 m (@50 kHz)	1540 m (@50 kHz)	420 m (@300 kHz)
Minimum Range	3 m	5 m	1.2 m
Max. Effective Measurement Rate	up to 500,000 meas./sec. (@ 550 kHz PRR & 330° FOV)	up to 750,000 meas./sec. (@ 820 kHz PRR & 330° FOV)	up to 1,000,000 meas./sec. (@ 1000 kHz PRR & 360° FOV)
Accuracy	10 mm	15 mm	5 mm
Precision	5 mm	10 mm	3 mm
Scan Speed (selectable)	10-200 scans/sec	10-200 scans/sec	10-250 scans/sec
Field of View	up to 330° (full range measurement performance)		360° full circle
Angular Resolution	0.001°		
Laser Product Classification	Class 1 Laser Product according to IEC 60825-1:2014		
Laser Wavelength	1550 nm near infrared		
Laser Beam Divergence	0.5 mrad		
Protection Class	IP64, dustproof and splash-proof		
Humidity	max. 80 % non-condensing @ 31°C		
Internal Memory	1 TB SSD		
Part II : Position & Orientation System (POS)			
Model Code	R1000UAV	R1000LR	R1000HA
Accelerometer Range	±20 g		
Gyroscope Range	±200°/sec		
Gyroscope Bias Stability	±0.25°/hr		
Heading Accuracy	post processed: 0.05°		
Roll/Pitch Accuracy	post processed: 0.015°		
Positioning Accuracy	post processed: H. 1 cm; V. 2.5 cm		
Part III: Imaging System			
Fitting Mode	UAV-based	Helicopter-based	SUV-based
Sensor Type	DSLR camera	Industrial-level metric camera	360° spherical camera system
Sensor Model	Sony Alpha7RII	PhaseOne iXU-RS180	FLIR Ladybug5+
Imaging Type	orthophotography, RGB	orthophotography, RGB	panorama, RGB
Resolution	42.4 MP	80 MP	30 MP (5 MP*6 sensors)
Lens	35 mm, F/1.4	32 mm, F/4.0	/
Weight (lens included)	1.0 kg / 2.21 lb	1.90 kg / 4.19 lb	3.0 kg / 6.61 lb

Note: all information above is subject to change without any prior notice.

System Configuration

Component	Standard	Option
Laser Scanner	√	
Position and Orientation System (POS)	√	
Control & Storage System	√	
360 Spherical Camera (SUV-based)		√
DSLR Camera (UAV-based)		√
Industrial-level Metric Camera (helicopter-based)		√

Software Kit

Related Software	Standard	Option
Z-Lab LiDAR-Ctrl (system control)	√	
Inertial Explorer (trajectory processing)	√	
Z-Lab Pt-process (point cloud generation)	√	
Terrasolid (point cloud application)		√
Z-Lab Mapper (vectorized mapping)		√



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SZT-R1000 II Series

A Multifunctional LiDAR Solution

4
kilogram only
(without camera)

5
millimeter scanner
accuracy optimal

250
scans per second
maximum

1,540
meter measuring
range maximum

1,000,000
effective measurements
per second maximum

Fly or Drive? Map 3D Map...



Z-Lab LiDAR

V. 2020 MAY

- ✓ Extremely lightweight unit with compact design
- ✓ Survey-grade sensors integrated for accurate topography
- ✓ Ready to fit a variety of mobile carrier platforms
- ✓ Complete software kits available for abundant outputs
- ✓ Field-proven solutions and project-based background



DSLR Camera Sony Alpha7RII
(42.4 MP)



360° Spherical Camera System
FLIR Ladybug5+ (30 MP)



Industrial-level Metric Camera
PhaseOne iXU-RS180 (80 MP)

Fly with a manned aircraft to challenge those much bigger mission zones with complex terrain and dense vegetation.

Fly with a VTOL fixed-wing drone (different options) to replace multi-rotor for longer endurance (eg. 2-6 hours).

Fly with a multi-rotor UAV (comparably cost friendly) for small areas that are considerably elevated and inaccessible.

Drive when it's possible. Mostly used for road expansion or reconstruction topography, and road assets inventory.

