Specification

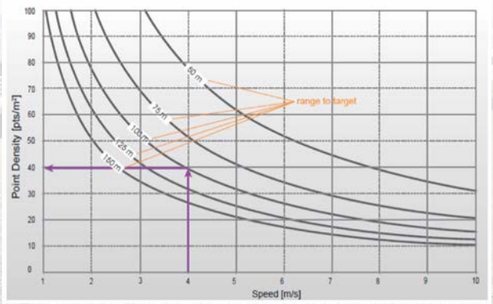
LiDAR System	
Laser Range	max. 250 m
Field of View	0°~ 360°
Angle Resolution	0.001°
Max. Meas. Rate	up to 100,000 meas./sec
Accuracy	H/V: 5 cm @50 m; H/V: 10 cm@100 m (UAV)
	H/V: 3 cm (Automotive)
Camera	24.3 MP RGB
Recommended scanning height AGL	10-100 m
Weight	2.1 kg (w/o camera)
Dimensions	297 x 85 x 111 mm
Input Voltage	11-32V DC
Power Consumption	27 W
Part I: Laser Scanner	
Type	RIEGL miniVUX-1UAV
Wavelength	905 nm
Eye Safety Class	laser class 1
Laser Pluse Repetition Rate	100 kHz
Scan Speed	10-100 scans/sec
Multi-echo effect	up to 5 echoes per shot
Accuracy / Precision	15 mm / 10 mm
Data Storage	SDHC/SDXC 32 GB (128 GB max.)
Environment Protection	IP64
Temperature	operating: -10° to 40°C; storage: -20° to 50°C
Part II: POS System	
Type	SPAN IMU-IGM-S1
Gyro Bias Stability	0.05°per hour
Gyroscope input range	400 deg/sec
Accelerometer Range	±10 g
Processed Roll/Pitch Accuracy	0.006°
Processed Heading Accuracy	0.019°
Processed location H/V Accuracy	0.01/0.02 m
Processed Speed H/V Accuracy	0.02/0.01 (m/s)
Data Sampling Rate	POS: 125 Hz; Location: 50 Hz
Internal Memory	8 GB

Package

Item	Recommended Configuration	
	UAV-based	SUV-based
	hardware	
LiDAR Sensor	SZT-R250	SZT-R250
Imaging Sensor	Sony ILCE-a6000	FLIR LadyBug5
Carrier Platform	DJI Matrice600 Pro	(conventional SUV models)

Point density by flight speed and altitude

PRR = 100 kHz



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Fly or Drive? Map 3D Map . .

Z-Lab LiDAR

Z-Lab LiDAR

Mini LiDAR System SZT-R250

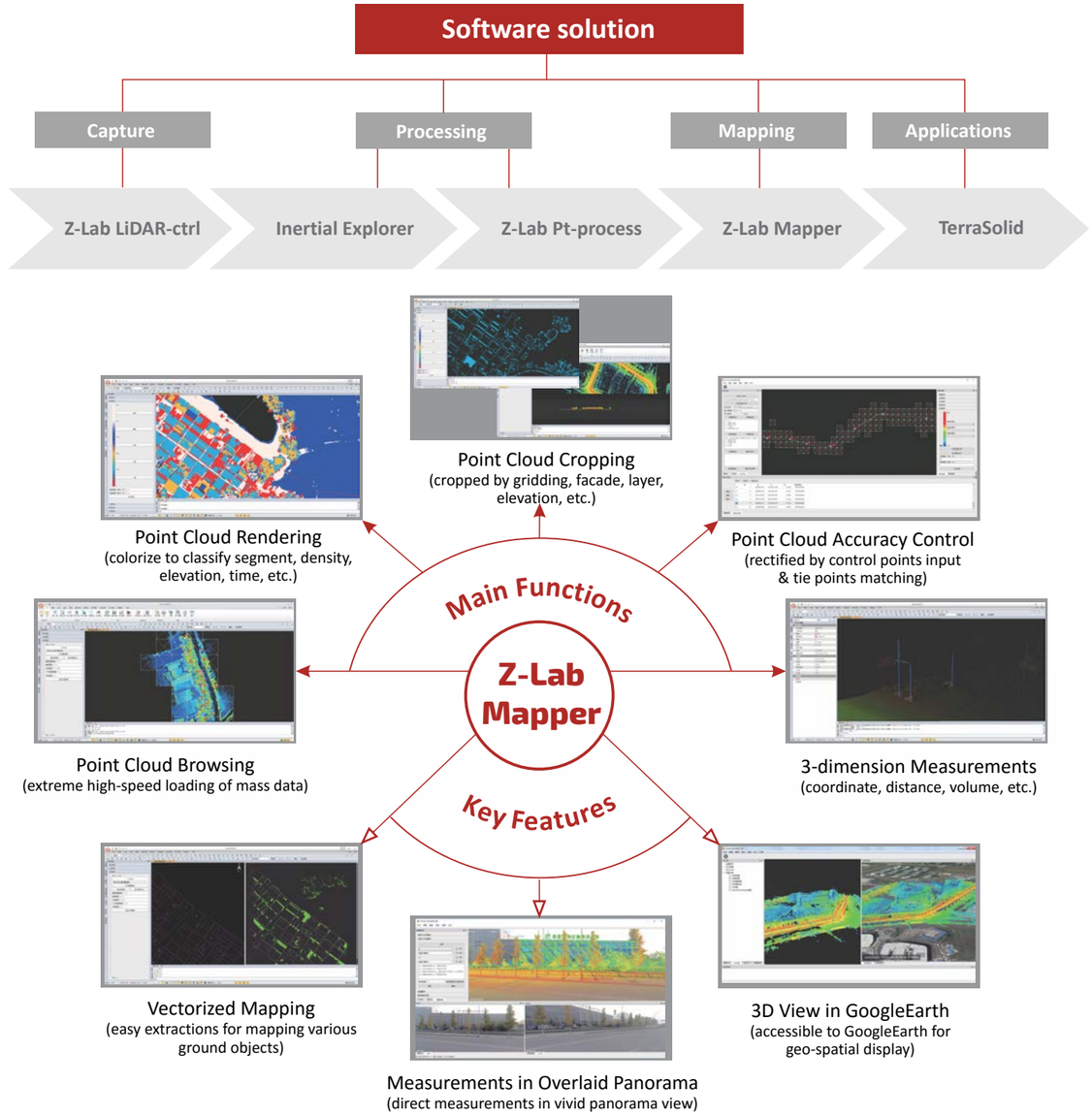
Several days
or just a single day?
LiDAR chooses for you!

flight altitude	point density	estimated coverage	
		per flight	per day
50 m	43-65 pts/sq.m	0.25 sq.km (25 ha)	2.5 sq.km (250 ha)
75 m	29-43 pts/sq.m	0.40 sq.km (40 ha)	4 sq.km (400 ha)
100 m	22-32 pts/sq.m	0.90 sq.km (90 ha)	9 sq.km (900 ha)
125 m	17-26 pts/sq.m	1.20 sq.km (120 ha)	12 sq.km (1200 ha)
150 m	16-24 pts/sq.m	1.40 sq.km (140 ha)	14 sq.km (1400 ha)

Note: the data shown above is based on flat terrain conditions for job reference only, and the estimated coverage per day is computed with 10 flights in total. Complex terrain of elevated areas or vegetated zones might reduce the work efficiency somehow. With the same laser emitting power, the point density varies greatly from reflective distance and reflective ratio of the target, moving speed of the carrier and air permeability. Theoretically, higher point density is possible with customized flight plans while bigger coverage figures are expectable with increased flight numbers.

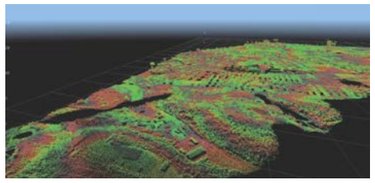
scanning speed	line spacing	roadway to scan per day	
		1-3 lanes	4-6 lanes
18 km/h	5 cm	108 km	54 km
36 km/h	10 cm	216 km	108 km
54 km/h	15 cm	324 km	162 km
72 km/h	20 cm	432 km	216 km

Note: the line spacing figures were computed by driving speeds and mileage efficiency was generated from 6-hour effective mobile scanning accordingly. The ground base station is recommended to shift to the next location ahead when the radio datalink radius exceeds 25 km. In case of roads with dense traffic conditions or with green belts/isolation guardrails in the middle of 2-way, it's required to conduct multiple drives for filling the data gaps due to earlier occlusions.

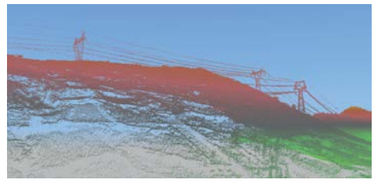


Tough Topographic Survey Jobs
- highly efficient aerial data capture for topographic or cadastral survey
- excellent elevation accuracy control within centimeter level
- ideal for highly vegetated areas due to canopy penetrations
- ready for aerial lasergrammetry in places hard to reach or hard to track GPS signals

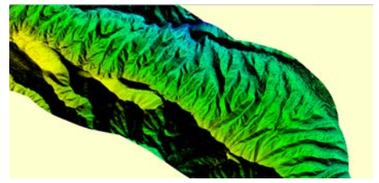
Traffic Network Development
- highly efficient terrestrial data capture by linear mobile laser scanning
- designed for topographic survey of road/railway system development or expansion
- tailored to asset inventory survey of road/railway system against maintenance and evaluation
- an ideal alternative of total station or RTK survey due to a variety of satisfactory outputs



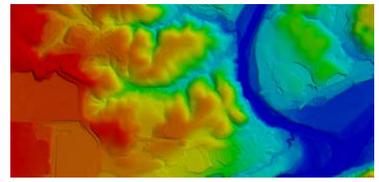
Forestry Investigation & Planning
- highly efficient aerial data capture for topographic survey in jungles or forests
- to obtain abundant indicative information such as tree height, stem diameter, canopy shape, etc. in short time
- ideal for species identification, deforestation planning & investigation



Applications in Power Transmission Industry
- fast and contactless 3D data capture of power lines and ground surface attachments
- to provide visualized and analytical management for existing power lines network
- to identify defects on transmission lines through geo-referenced point cloud
- ideal for digital transfer of survey, design and engineering accomplishments



Disaster Monitoring & Emergency Response
- laser scanning is unaffected by light conditions while airborne mode won't suffer from traffic chaos
- to obtain topographic data and terrain features in disaster areas for realtime analysis
- quick reference for disaster relief and post-disaster reconstruction arrangements



Irrigation System Development
- to conduct topographic survey with data capture of vegetations and ground objects
- to obtain high-precision digital terrain model and orthophoto map for irrigation works planning
- ideal for location optimization, engineering control, landslide monitoring, flow direction analysis, etc.