

Leica Pegasus:Backpack

Mobile reality capture



BIM & infrastructure documentation

The Leica Pegasus:Backpack enables regular indoor data capture for efficient and cost-effective building documentation, milestone approval and payment validation. This wearable reality capture solution delivers complete as-built 3D point cloud and image data in an authoritative and professional way, bringing practical productivity for BIM to the next level and making indoor reality capture easy. Quickly report powerline clearances of critical infrastructures.



Industrial training

Better understand the landscape you are operating in, by creating reality based 3D industrial training environments and documenting any site changes in 3D to. Enhanced trajectory calculation with SLAM technology for indoor mapping purposes makes updating 2D and 3D drawings easier while adding the further value of combining images and LiDAR.



Security & disaster response

Make faster and better decisions based on accurate data to develop evacuation plans, map routes and be informed of any area changes, even in pedestrian-only, underground or GNSS-denied zones. Cut down response time and capture critical data in disaster areas by efficiently mapping the area on foot to ultimately save lives and minimise damage.

Leica Pegasus:Backpack specifications

CAMERA SENSOR

Number of cameras	5
CCD size	2046 x 2046
Pixel size	5.5 x 5.5 microns
Maximum frame rate	2 fps x camera equal to 40 M pixels per second
Lens	6.0 mm focal
Coverage	360° x 200°

SCANNER

Type	Dual Velodyne VLP-16
FOV horizontal / vertical	270°/ 30° (± 15°) per scanner
Channels	16
Acquisition	600,000 pts/sec
Frequency	10 Hz
Range	Usable range: 50 m

CONTROL UNIT

Multi-core industrial PC, low power consumption, 1 TB SSD hard disk with USB3 interface. Ethernet and wireless connections available. Service support available through remote interface.

BATTERY SYSTEM PERFORMANCE

Typical operating time	4 hrs
Time to full charge	3 hrs
Batteries	2 or 4 batteries
Battery life time extension	Batteries are hot-swappable (no shut down needed)
DC output	14.8 V
Amp hours	23.2 Ah
Weight	1.8 kg for 4 batteries

GNSS/IMU/SPAN SENSOR

Includes triple band – L-Band, SBAS, and QZSS for GPS, GLONASS, Galileo, and BeiDou constellations, single and dual antenna support.

ENVIRONMENTAL

Operating temperature	0° C to + 40° C, non-condensing
IP protection class	IP 52
Storage temperature	- 20° C to + 50° C, non-condensing

PRODUCTIVITY

Data produced per project (compressed)	1 GB every minute of walking
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ACCURACY

Relative accuracy	2 cm – 3 cm for outdoor and indoor
Absolute position accuracy outdoor	5 cm
Absolute position accuracy indoor (SLAM based without control points)	5 cm to 50 cm for 10 minutes walking, minimum 3 loop closures or double passes conditions A variety of factors can influence a trajectory accuracy negatively including: <ul style="list-style-type: none"> • Small rooms or hallways • A need to pivot while walking • Stairs and uneven pavement • Extremely smooth or blank surfaces • Surfaces too far from the scanners • Fast vertical movement - elevators are not supported Under typical indoor conditions, the lower range of the accuracy specification can be achieved.

Images	JPEG and ASCII for photogrammetric parameters
Point cloud	Binary LAS 1.2. X,Y,Z, intensity, RGB values Colourisation by camera pictures Hexagon Point Format, Recap E57, 2D/3D DXF, PTS, DWG, DGN
Trajectory	NMEA, KMZ

SENSOR PLATFORM

Frame material	Carbon fiber
Cover material	High resistance industrial textile
Weight	11.9 kg with batteries
Weight with case	32 kg including accessories
Size	73 x 27 x 31 cm
Size with case	95 x 53 x 43 cm



Optional lighting feature



Easily accessible extension ports



From left to right:
Case, prism, tablet
device, sensor system,
4 batteries with charging
dock, external converter

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