

Leica Pegasus:Backpack Mobile Reality Capture



reddot award
winner

leica-geosystems.com



- when it has to be **right**

Leica
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HEXAGON

Leica Pegasus:Backpack

Versatile and wearable platform for indoor & outdoor reality capture

In today's complex world, keeping pace with the speed of change is a challenge for all professionals in any industry.

The Leica Pegasus:Backpack is the award-winning wearable reality capture solution enabling you to make quick and informed decisions in fast-changing, challenging and hostile environments. This GNSS agnostic solution captures immersive 360° imagery, and the optional 200m long range scanner improves data completeness for tall constructions such buildings, increases the flexibility and efficiency of your investment. Just by walking, this multidisciplinary system allows you to digitise pedestrianised city centers, the progress of construction sites, building interiors, underground structures and many more challenging applications.

Light & robust

The lightweight carbon unibody system frame and the researched ergonomic support structure increases the mobility and flexibility for the wearer under challenging conditions, and reduces fatigue resulting in increased productivity.



Batteries

With the latest generation hot-swappable Li-Ion batteries, longer data collection missions are facilitated. Each single battery provides 1h operating time. The system includes a charging station, so a second set of batteries can be recharged during a data capture, thus further extending operational time.



New 200m long range 3D Laser Scanner

The new 200m long range 3D Laser Scanner increases your productivity by covering bigger areas per mission. The prolonged range and wide field of view captures higher and further, eliminating shadows in the final 3D point cloud.



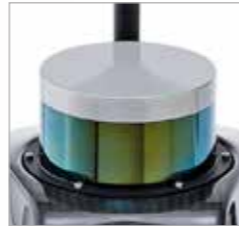
GNSS Antenna

The GNSS antenna provides the highest positioning performance for your mission supporting all available satellite systems in best, good and challenging conditions.



SLAM Scanner & IMU

A sophisticated integration of IMU and SLAM (Simultaneous Localisation and Mapping) technology enables georeferencing in GNSS denied areas such as indoors, subways and tunnels.



20 megapixel immersive virtual panoramic cameras

The 5x 4 megapixel cameras are mounted for the best imagery coverage. The captured georeferenced images are stitched to an immersive panoramic experience and are used to navigate and colourise the point cloud.



All-in-one and easy transportable

Dedicated accessories can be stored jointly with the system in a ruggedised aluminium case fitted with comfortable handlebars and wheels to easily arrive at the job site. The reduced total weight of 30kg means the entire system can be checked in as luggage on aircraft.



Pegasus:Manager

Efficient, easy workflows, from mission planning to batch extraction and Jetstream collaboration to online web-sharing

Pegasus:Manager is the new Reality Capture software client for mobile mapping, a single desktop application for processing, analysing, and extracting features from point clouds and images acquired by the Leica Pegasus Mobile Mapping systems. The Leica Pegasus:Manager desktop client, composed of different modules and enables a tailor-made software suite aligned to your industry focus or project scope. Accurate mission planning, data processing, automated feature extractions, integrated quality reporting, and online publishing makes Leica Pegasus:Manager an efficient single workflow for high-precision deliverables. As an option, Leica Pegasus:Manager can publish Jetstream files to enable Cyclone users to combine multi-sensor projects into a single file for convenient data sharing.

Mission Planning

Design your mission to achieve the best results:

- The Mission planning module calculates the ideal time slot to collect data based on favourable GNSS satellite constellations and the ideal sun position for best imagery.
- The module can support GNSS coverage affected by urban structures to provide an estimation of mission accuracy.

Anonymization Tool

Comply with the latest privacy regulations in one click:

- A refined machine learning algorithm automatically detects relevant subjects to be anonymised.
- Pedestrians, cars, cyclists and other subjects are identified and anonymised 30 times faster than editing manually.



Online Video Tutorial

Increase your product knowledge and productivity.

- Benefit from online video tutorials for software
- Available for Mobile Mapping customers with valid CCP



Infrastructure

As the world population grows and global changes in building and infrastructure construction become more rapid, the need to document this growth and change increases. The Leica Pegasus:Backpack can be used to quickly acquire the digital twin, and create complete 3D models, accurately constructed through point clouds.



Utilities

Based on SLAM's indoor positioning technology, Leica Pegasus:Backpack can easily cope with the rapid acquisition of 3D point cloud data in underground space, and therefore provide a new solution for the urban underground space survey.



BIM & Construction

Capture data periodically and efficiently to document changing building construction sites and to achieve weekly milestones. Easily monitor construction to meet 4D scheduling deadlines and deliver an as-built 3D point cloud and image dataset after building construction is completed.



Public Security

Base real-time decisions on accurate data to create evacuation plans and map routes. Benefit from clear and detailed images and point clouds, alerting authorities to area changes. Provide accurate mapping for densely populated areas and give services the means to keep large crowds safe.



Disaster management

Responders to natural disasters can quickly capture the affected area in 3D on foot, therefore reducing the time the operator spends in the danger area. Capture the critical data needed to make faster, well informed decisions, increasing chances of survival and aiding reconstruction.



Industrial training

Knowing and understanding an industrial landscape when rushing into emergency situations can reduce damage and save lives. Document sites in 3D point clouds and images to train your team for fast, safe and efficient responses during emergencies and provide reality-based industrial training.

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°

SLAM / DATA SCANNER

FOV horizontal / vertical	360° / 30° (± 15°)
Channels	16 / 32 (Long Range)
Acquisition	600,000 pts/sec / 900,000 pts/sec (Long Range)
Frequency	10 Hz
Range	Up to 100 m / 200m optional Long Range

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 connection.

BATTERY SYSTEM PERFORMANCE

Typical operating time	4 hrs (4 Batteries)
Time to full charge	3 hrs
Battery extension	Batteries are hot-swappable (no shut down needed)

GNSS/IMU/SPAN POSITIONING SOLUTION

GNSS Receiver: Includes triple band – L-Band, SBAS, and QZSS for GPS, GLONASS, Galileo, and BeiDou constellations.

GNSS Antenna NovAtel 850 with multipath mitigation

ENVIRONMENTAL

Operating temperature	0° C to +40° C
IP protection class	IP 52 (Dust / Dripping water protected)

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)	1 to 5 times the scanner noise for 10 minutes walking, minimum 3 loop closures or double pass conditions *
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 fibre
Cover material	High resistance industrial textile
Weight	11.9 kg with batteries
Size	73 x 27 x 31 cm

TRANSPORT CASE

Weight with case	32 kg including accessories (can be checked in as luggage)
Size with case	95 x 53 x 43 cm

* A variety of factors can influence a trajectory accuracy. Under typical indoor conditions, the lower range of the accuracy specification can be achieved.

BASIC CCP» BLUE CCP» BRONZE CCP» SILVER CCP» GOLD CCP»

CUSTOMER SUPPORT	✓	✓	✓	✓	✓
FIRMWARE MAINTENANCE	✓	✓	✓	✓	✓
EXTENDED WARRANTY	-	-	✓	✓	✓
HARDWARE MAINTENANCE	-	✓	-	✓	✓
BACKUP SYSTEM	-	-	-	-	✓

Hardware Customer Care Packages available for 1/2/3/5 Years



Leica Geosystems – when it has to be right

Revolutionising the world of measurement and survey for nearly 200 years, Leica Geosystems, part of Hexagon, creates complete solutions for professionals across the planet. Known for premium products and innovative solution development, professionals in a diverse mix of industries, such as aerospace and defence, safety and security, construction, and manufacturing, trust Leica Geosystems for all their geospatial needs. With precise and accurate instruments, sophisticated software, and trusted services, Leica Geosystems delivers value every day to those shaping the future of our world.

Hexagon is a global leader in sensor, software and autonomous solutions. We are putting data to work to boost efficiency, productivity, and quality across industrial, manufacturing, infrastructure, safety, and mobility applications.

Our technologies are shaping urban and production ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 20,000 employees in 50 countries and net sales of approximately 3.8bn EUR. Learn more at hexagon.com and follow us @HexagonAB.



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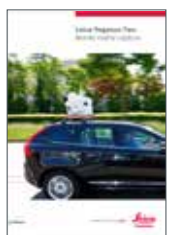
Leica Pegasus:Manager
Mobile Mapping
Desktop



Leica Pegasus:Two Ultimate
Mobile Reality
Capture



Leica Pegasus:Swift
Mobile Reality
Capture



Leica Pegasus:Two
Mobile Reality
Capture