Leica Pegasus:Backpack
Mobile Reality Capture

- when it has to be right

leica-geosystems.com

reddot award winner
**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. The Leica Pegasus:Backpack system captures the wearer under challenging conditions, and reduces fatigue resulting in improved productivity.

### Features:

**Light & robust**

The lightweight carbon unibody system frame and the researched ergonomic support structure increases the reality 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 feasible. Each single battery provides 1h operating time. The system includes a charging station, so recharged out 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 Scanner increases productivity by covering bigger areas per mission. The prolonged range and wide field of view optics lower and further, eliminating shadows in the final 3D point cloud.

**20 megapixel immersive virtual panoramic cameras**

The 5x 4 megapixel cameras are mounted for the best imagery and help to create complete 3D models, accurately constructed by covering bigger areas per mission. The prolonged range and wide field of view optics lower and further, eliminating shadows in the final 3D point cloud.

**GNSS Antenna**

The GNSS antenna provides the highest positioning performance for outdoor reality capture solutions available. With the Leica Pegasus:Backpack you can meet 4D scheduling deadlines and deliver an as-built model of your project for weekly milestones. Easily manage construction to changes and challenges.

**SLAM Scanner & IMU**

A sophisticated integration of IMU and SLAM (Simultaneous Localization and Mapping) technology enables georeferencing in GNSS-denied areas such as indoors, subways and tunnels. The SLAM Scanner & IMU extends operational time.

**All-in-one and easy transportable**

Dedicated accessories can be charged jointly with the system in a suggested aluminium case fitted with comfortable handlebars and wheels to easily enter of the job site.

The reduced total weight of 30kg means the entire system can be checked in as luggage on aircraft.

**Infrastructure**

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

**Utilities**

KNOWLEDGE IS POWER. Leica’s award-winning Proingeo technology, Leica Pegasus:Boxpack can be easily paired 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 profitably and efficiently to document changing building construction sites and to achieve seamless integration. Easily-monitor construction over 24/60 scheduling deadlines and deliver an as-built point cloud and image database after building construction is completed.

**Public Security**

Knowing and understanding changes and challenges quickly can capture the affected area in 3D at any time, 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.

**Disaster management**

Respondents to natural disasters can quickly make faster, well-informed decisions, increasing chances of survival and aiding reconstruction. The 5x 4 megapixel cameras are mounted for the best imagery and help to create complete 3D models, accurately constructed by covering bigger areas per mission. The prolonged range and wide field of view optics lower and further, eliminating shadows in the final 3D point cloud.

**Online Video Tutorial**

Increase your product knowledge and productivity. Benefit from online video tutorials for software. Available for Mobile Mapping customers with valid CCP.

**Pegasus:Manager**

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

**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.

**Disaster management**

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**Industrial training**

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**Mission Planning**

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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

**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
- Colourisation by camera pictures
- Hexagon Point Format, Recap E57, 2D/3D DXF, PTS, DWG, DGN

**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.

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### CUSTOMER SUPPORT

- Basic
- Blue
- Bronze
- Silver
- Gold

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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.