

# Leica Pegasus:Backpack

## Mobile reality capture



reddot award 2016  
winner



# Leica Pegasus:Backpack

Award-winning wearable reality capture sensor platform –  
Reliable indoor or outdoor mapping documentation for professionals

The Leica Pegasus:Backpack is the award-winning wearable reality-capture sensor platform combining cameras and LiDAR profilers with the lightness of a carbon fibre chassis in a highly ergonomic design. This mobile mapping solution enables authoritative indoor or outdoor mapping documentation with professional quality. Designed for quick and easy reality capture, the Leica Pegasus:Backpack turns

progressive scanning into a simple procedure, with no scan registration needed. This wearable technology is completely portable and will easily travel with you wherever you go. Just check it in as luggage on any flight, collect it, put it on and power it up. As part of the Leica Pegasus platform, this solution is designed to act as a sensor platform with our standard external trigger and sync port outputs.

## Map indoors, outdoors, underground or anywhere

Make progressive professional BIM documentation a reality using the Leica Pegasus:Backpack. By synchronising imagery and point cloud data together, you will be assured of complete building documentation for full life cycle management. With SLAM (Simultaneous Localisation and Mapping) technology and a high precision IMU, we ensure accurate positioning during GNSS outages is achieved. Always trust you have the best known

position, regardless of where it is used. With the Leica Pegasus:Backpack outdoor areas or underground infrastructures with limited access no longer limit professional data collection. Get the full picture capturing 360° spherical views and LiDAR together. A hardware light sensor ensures all images are usable while GNSS and battery power functions are verifiable and adjustable over the operator's tablet device.

### Main features

- Indoor and outdoor mapping in one single solution – position agnostic
- Combines imagery and point cloud data into a single calibrated, user-intuitive platform
- Fully calibrated spherical view
- External trigger output and external time stamping for additional sensors
- Light sensor for auto brightness and balance control for image capture
- Software enables access to Esri® ArcGIS for Desktop
- Capture and edit 3D spatial objects from images and/or within the point cloud
- Data economics – balances data quantity and quality, with project logistics and post-processing
- Ultra-lightweight carbon fibre core frame with an extensive ergonomic support for prolonged use
- Real-time view of the captured data through the tablet device
- Up to six hours operational time with optional battery pack

### Hardware features

- Two profilers with 600,000 pts/sec, 50m usable range and 16 channels
- Largest sensor to pixel on the market – 5.5 um x 5.5 um
- Five 4 MP cameras positioned to capture 360° x 200° views
- User-adjustable acquisition intervals based on distance travelled
- NovAtel OEM 638 provides the latest and most sophisticated precise GNSS receiver with a robust field-proven IMU for position accuracy of 20 mm RMS after 10 seconds of outage
- Combining a triple band GNSS system with the latest multiple beam enabled SLAM algorithms
- INS determination of the location, speed, velocity and orientation at a rate of 200Hz
- Ultra-portable system fits into one carrying case (system weight 13 kg)
- Battery based – using four batteries in a hot swappable configuration
- Multi-core industrial PC, 1 TB SSD, USB3 interface, ethernet, and wireless connection from the system to the tablet device



**By combining visual images with the accuracy of a point cloud, the award-winning Leica Pegasus:Backpack enables never-before indoor and outdoor mapping applications for professional documentation.**

### Software features

- User can add acquisition point objects in a Shapefile format during data acquisition
- Advanced export capability for CAD systems and others (DWG, DXF, SHP, GDB, DGN, E57, HPC, LAS, PTS, NMEA, KMZ)
- Semi-automatic extraction tools
- Sequenced images and videos for rapid navigation and object recognition
- Software pointer "snaps" automatically and continuously onto point cloud data from within an image
- Immediate access to point clouds for accurate measurement
- 3D stereoscopic view to decrease errors and increase throughput
- Shadowed or missing 3D points can be acquired via photogrammetric processes
- Data capture module displays the current GIS location and LiDAR scans for laser scanning management and GNSS operation
- Live status monitoring of system during data acquisition

### Software benefits

- LiDAR accuracy with image-based usability
- Digitise spatial objects through mobile mapping
- A more natural approach for non-professional users while offering technical interface for advanced users
- Scalable to your applications including less accurate simple GIS needs
- Short data acquisition time
- High acquisition throughput
- High post-processing throughput
- Manageable license options – compatible with thin-client viewer
- Esri® ArcGIS for Desktop compatible
- Leverages Esri® relational platform for advanced features

Reality capture solutions by Leica Geosystems give you the power to digitise the world around you enabling you to work where and how you want. With advanced scanning technologies, capture the real world like never before.

**Mobile reality capture.**

Revolutionising the world of measurement and survey for nearly 200 years, Leica Geosystems 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 dependable services, Leica Geosystems delivers value every day to those shaping the future of our world.

Leica Geosystems is part of Hexagon (Nasdaq Stockholm: HEXA B; hexagon.com), a leading global provider of information technologies that drive quality and productivity improvements across geospatial and industrial enterprise applications.

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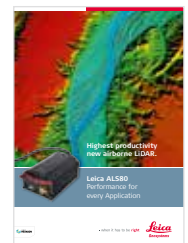
**Leica Viva GS25**  
 GNSS Surveying Receiver  
 Peak Performance



**Leica ScanStation P20**  
 Industry's Best  
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**Leica ADS100**  
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 Airborne Evolution



**Leica ALS80**  
 Performance for  
 every Application