Leica TRK500 Mobile Mapping Smart Autonomous User Guide

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Leica TRK500 Mobile Mapping Smart Autonomous

Introduction

Mobile mapping has never been easier with Leica Pegasus TRK500/700 Neo. Intuitive and autonomous workflows make mobile mapping accessible to more professionals than ever before, opening more business and revenue opportunities across multiple industries. The Pegasus TRK500/700 Neo system captures and creates accurate, high-quality digital twins increasing efficiency from field to office.

- **The Future is Autonomous:** Transforming mobile mapping with autonomous data collection assuring project completeness.
- **The Future is Intelligent:** Delivering intelligence with advanced positioning, data-efficient sensors and adaptive imagery systems for rich, immersive detail to expand use cases.
- **The Future is Simplified:** Simplifying set-up, operation and application to expand opportunities while minimising personnel resources.

Main Unit

Pegasus TRK500 Neo: Pegasus TRK500 Neo – the data-efficient single scanner option, capturing 500,000 points per second.
Pegasus TRK700 Neo: Pegasus TRK700 Neo – with dual scanners for when higher point cloud density is required, capturing 1 million points per second.

Simplicity in design Simple in use

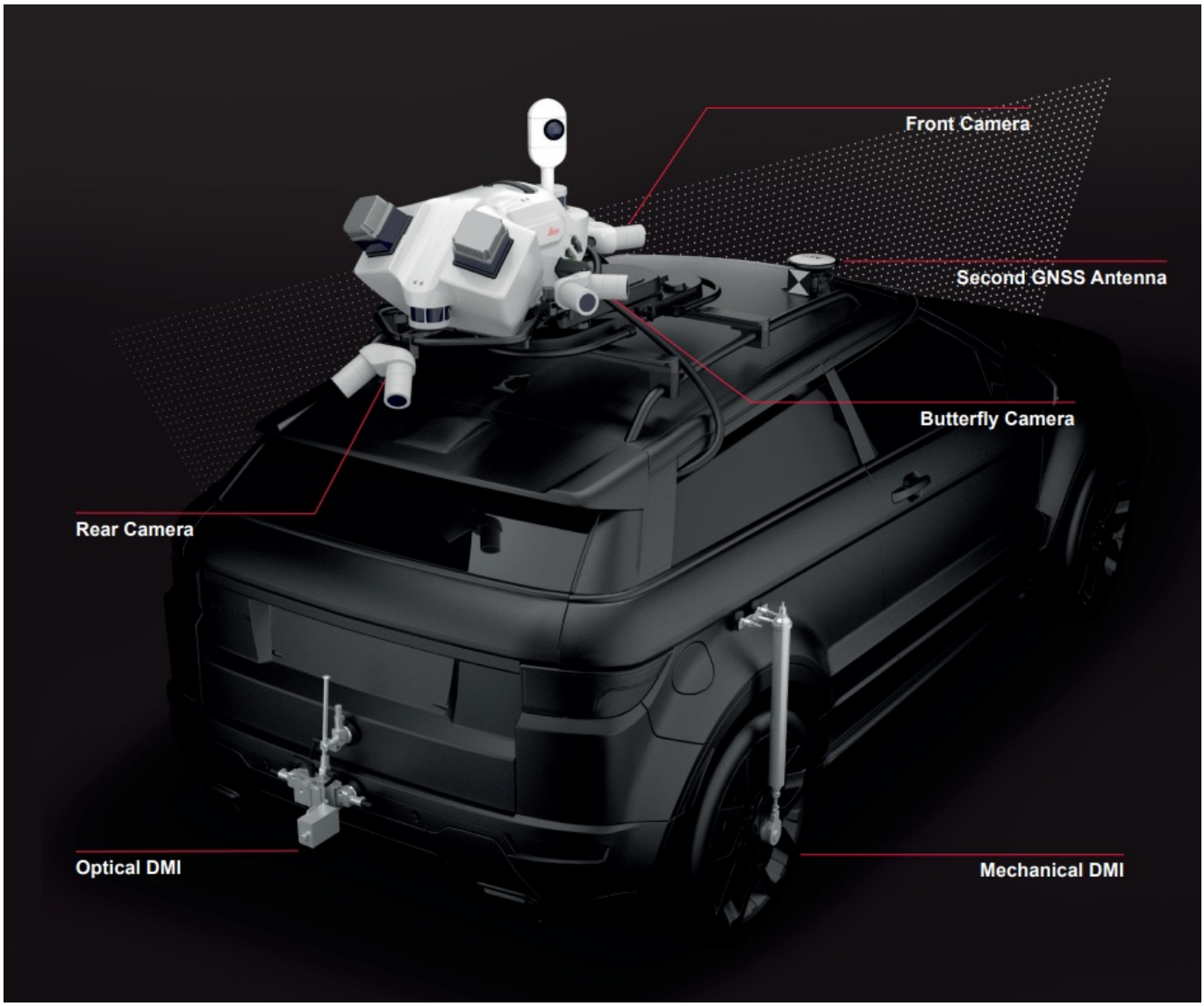
Battery Unit Expand when you need.
With safe transport mode, the Li-Ion batteries can be shipped safely so you can travel the world at ease. Expandable with up to three batteries for up to 21 hours of operation or hot-swap for continuous power, the Pegasus TRK power system keeps you moving.

Control Unit Works while you rest.

Created to transform the workflow for reality capture professionals, the control unit allows you to go straight from data capture to processing on-the-fly, right when you need it. No more time-consuming transcoding, storage overhead or errors during data transfer.

Endless Opportunity

Pegasus TRK puts mobile mapping in the hands of more people than ever before. Simple to operate, the Pegasus TRK requires less training so you can cut costs but not performance. Weighing in at just 18kg with a unique rotating-tilt mounting platform and ergonomic design, Pegasus TRK can be safely set up and operated by one person. Intuitive software guides you from project planning to project delivery.



Accessories

- **Carrier platform**

  The ergonomic lightweight carrier platform rotates and tilts to safely mount the Pegasus TRK system on your vehicle. The platform rotates into three positions (-30°/0°/+30°) which allows data collection from the TRK500 on the diagonal and a cross point cloud pattern from multi-pass acquisitions, usually only achievable with a dual scanner.

- **Modular camera system**

  Seamlessly integrate up to four additional 24MP pairs of cameras – to capture front, sides, and pavement angles for texture analysis and intrinsic calibration for seamless panorama imagery.

- **Butterfly side cameras**

  The butterfly side cameras have a dual position, vertical and horizontal, enabling the capture of vertical arches in high-resolution for texturing and damage analysis or horizontal features like traffic signs or civic numbers.

- **Optical DMI**

  The optical DMI is absent from the standard slip error of wheel-based DMI and complies with traffic safety regulations by being mountable on the car's backside and not exceeding the car silhouette.

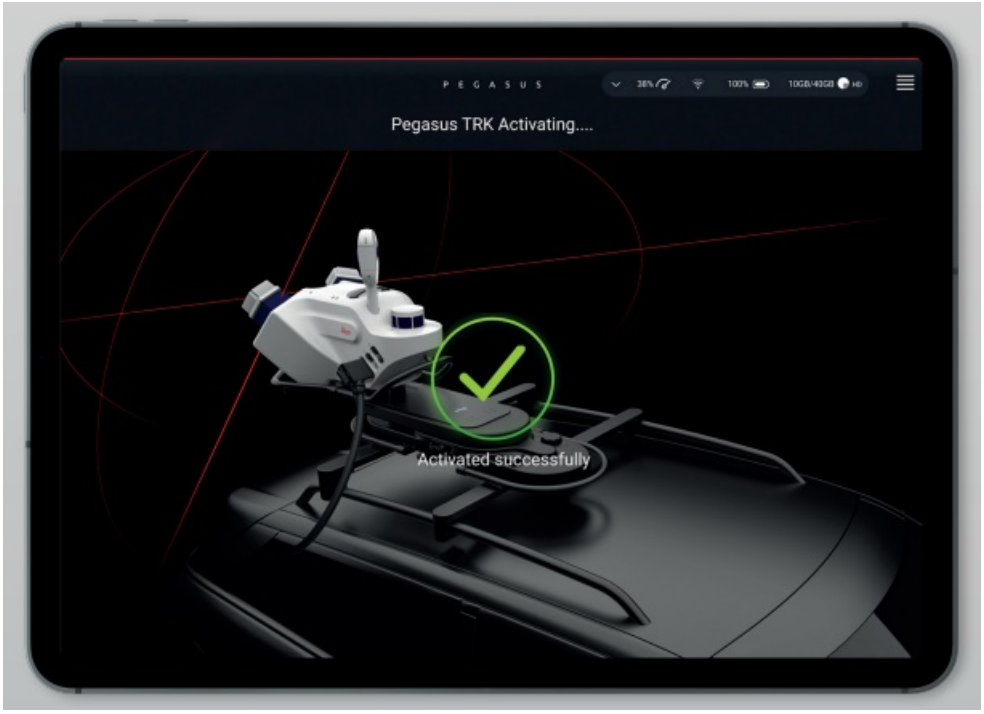
- **Second GNSS antenna**

  The second GNSS antenna improves the initialisation for rail and marine applications. The lever arm is automatically calculated, improving the overall accuracy results.

Software

All-new powerful software Leica Pegasus FIELD and Leica Cyclone PegasusOFFICE for a field-to-finished workflow – from data capture to processing and final deliverable.

Leica Pegasus FIELD
The all-new Leica Pegasus FIELD software brings autonomy to data collection. Plan routes and set goals for each project from the office or out in the field. Reliable data acquisition considers satellite availability and signal coverage for automated routing. With edge computing and on-the-fly processing, data is collected and enhanced in real-time at the speed of the traffic. This powerful field software will guide you through project set-up and plan projects based on your accuracy requirements and the environment – whether you're on city roads or railroads. Use predefined profiles to achieve the best possible results. Live feedback from audio and visual guidance removes uncertainties to plan and acquire data with confidence.

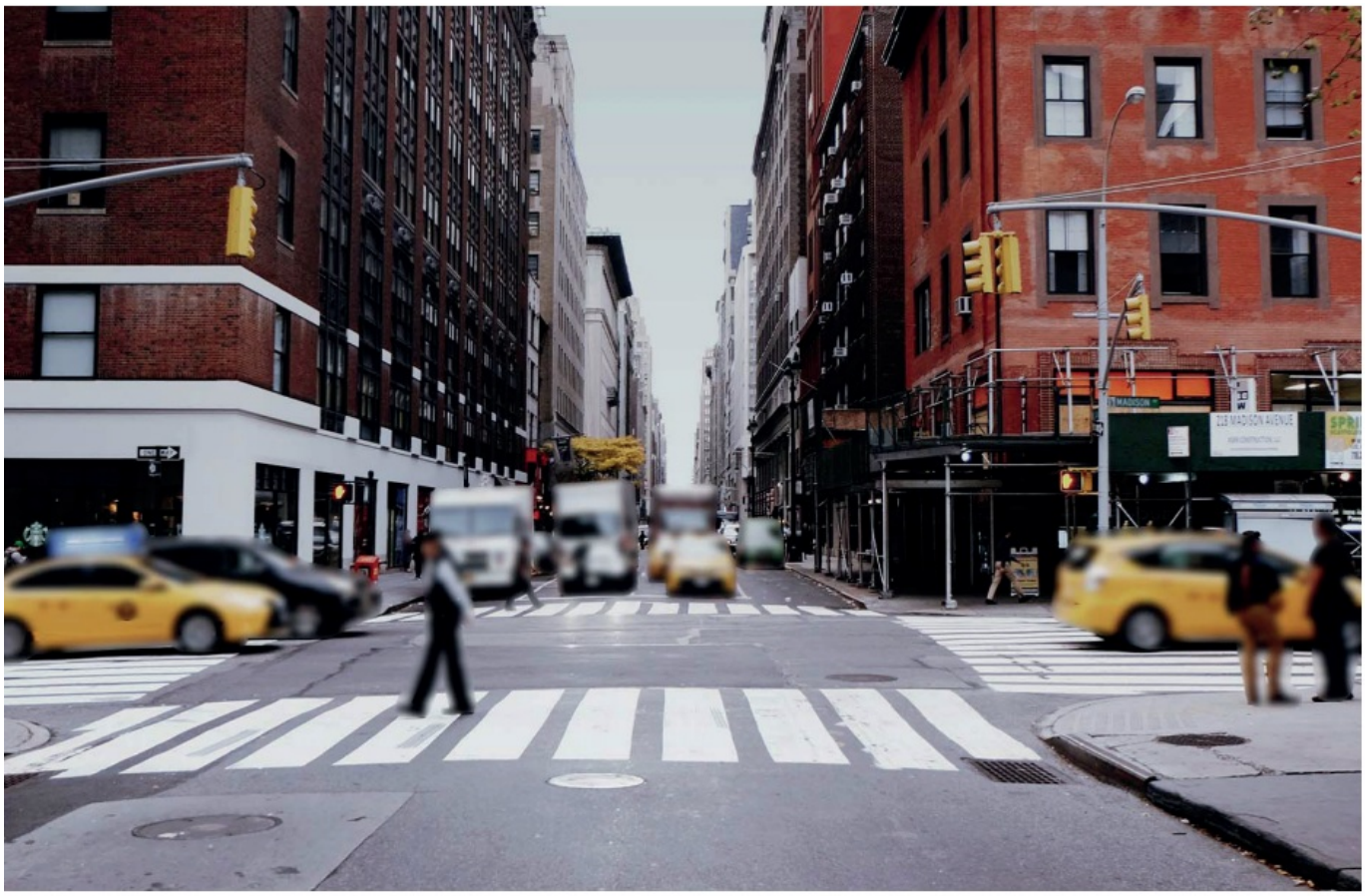


Leica Cyclone Pegasus OFFICE
With a familiar user experience to the established Cyclone software ecosystem, Leica Cyclone Pegasus OFFICE provides a seamless data flow into post-processing and publishing workflows. Complete all your processing requirements in one solution. Refine data with precision geo-referencing and multi-pass trajectory adjustment and create colourised 3D point cloud data that is automatically privacy-compliant.

Doing it all. In all new ways
Guided project set-up automates the mission planning and data collection process to increase efficiency, improve data quality and reduce project costs. Plan in advance with preset features and profiles that simplify system initialisation to data delivery. Intelligent routing for the most efficient data collection. Sensors are triggered autonomously along the planned route, so no detail is missed. Live in-field viewing of data acquisition is highlighted on the base map.

Built-in privacy

Say goodbye to manual object blurring. People and vehicles are anonymised in real-time, protecting citizen privacy and ensuring GPDR compliance. Integrated with a real-time AI algorithm, the Pegasus TRK solution actively identifies and blurs complete objects directly in the imagery as the data is collected. All information is encrypted and won't leave your Pegasus TRK system.



Applications

Pegasus TRK opens up a new world of application possibilities to a broader group of new or experienced users, those new to mobile mapping, and users with advanced technical expertise in industries such as surveying, transportation and utilities. Developed for applications requiring long-range mobile mapping, Pegasus TRK500/700 Neo delivers the highest levels of detail for digital twin creation.

Bring images and data to life.: Best-in-class colour truth – brought to life as it is in reality. Pegasus TRK features a SmartFusion ‘butterfly’ camera system with up to 120MP integral view. Boosted with add-on front, side and rear pavement cameras, TRK is expandable with a click. The additional cameras multiply the resolution, creating data-rich imagery. Enhanced calibration delivers true colour imagery according to the CIEDE2000 colour-difference formula.

A delta was never so small: The sophisticated integration of IMU and SLAM technology in Pegasus TRK’s sensor architecture enables georeferencing in challenging GNSS denied environments. Precision RTK positioning gives location accuracy down to the centimetre, in real-time. Trajectory is improved when optical DMI accessories are installed on the back of the vehicle to measure the travel distance in GNSS challenging conditions accurately, avoiding traditional slip error of wheel-based DMI.

Expand and go. More detail. More possibilities.: Fully integrated modular imaging system allows you to add more cameras for more angles, more detail and more possibilities. Automatic camera calibration simplifies and streamlines the system set up to expand and go. Collecting at up to eight frames per second, no details are missed.

Plan Capture Deliver

Plan and execute projects with confidence. Spontaneous visual and audio feedback along the route makes data collection failure a thing of the past. Leica Pegasus FIELD predicts the time required for planned missions and storage and battery capacity needed to perform the job. Throughout the journey, image previews, accuracy estimations, and live system feedback instil absolute confidence in the data acquisition process.

About Hexagon

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

Our technologies are shaping production and people-related ecosystems to become increasingly connected and autonomous – ensuring a scalable, sustainable future.
Hexagon's Geosystems division provides a comprehensive portfolio of digital solutions that capture, measure, and visualise the physical world and enable data-driven transformation across industry ecosystems.

Hexagon (Nasdaq Stockholm: HEXA B) has approximately 22,000 employees in 50 countries and net sales of approximately 4.3bn EUR. Learn more at hexagon.com and follow us @HexagonAB.

Leica Geosystems AG Heinrich-Wild-Strasse 9435 Heerbrugg, Switzerland+41 71 727 31 31

Documents / Resources

	Leica TRK500 Mobile Mapping Smart Autonomous [pdf] User Guide TRK500, TRK700 Neo, TRK500 Mobile Mapping Smart Autonomous, Mobile Mapping Smart Autonomous, Smart Autonomous

References

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- Leica Pegasus TRK - The Future is TRK | Leica Geosystems