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Leica Pegasus:Two
Mobile Mapping Solution

Asset Management
Pavement Assessment

Capturing assets for budget planning and maintenance scheduling, measuring road quality for budget reporting, and maintaining outdoor advertising compliance happens easily with semi-automatic data extraction into a standard GIS interface.

Survey & Design

With the appropriate control points, design and surveying for road construction is enabled at vehicle speeds. Coordinate conversion to local datums is standard and easy even with large datasets.

Rail Georeferencing

Enable quick and precise georeferenced cartography of railways, non-intrusive and safe, enables preventive maintenance while reducing surveying time and balancing staffing requirements.

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Leica Geosystems

Leica Pegasus:Two Product Specifications

Camera Sensor

Number of cameras	8
CCD size	2000 x 2000
Pixel size	5.5 x 5.5 microns
Maximum frame rate	8 fps x camera, equal to 256 M pixels x second (collected, compressed, stored)
Lens	8.0 mm focal, ruggedised; 2.7 mm focal, top
Coverage	360° x 270° excluding rear down facing camera

Scanner

Please refer to scanner manufacturer datasheet.

Control Unit

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

Battery System Performance

Typical operating time	9 hrs, profiler version; 13 hrs, scanner version
VAC input voltage	100 min to 240 max VAC autoranging
AC input power (charge cycle)	350 W Max
AC input frequency	50/60 Hz
Time to full charge	11.0 max h starting 0 %
DC output	21 – 29 volts
Watt/Amp hours	2685 Watts hours / 104 Amp hours

GNSS/IMU/SPAN Sensor

Includes triple band – L-Band, SBAS, and QZSS for GPS, GLONASS, Galileo, and BeiDou constellations, single and dual antenna support, wheel sensor input, tactical grade – no ITAR restrictions, low noise FOG IMU.

Frequency	200 Hz
MTBF	35,000 hour
Gyro bias in-run stability (±deg/hr)	0.75
Gyro bias offset (deg/hr)	0.75
Gyro angular rand. walk (deg/√hr)	0.1
Gyro scale factor (ppm)	300
Gyro range (±deg/s)	450
Accelerometer bias (mg)	1
Accelerometer scale factor (ppm)	300
Accelerometer range (±g)	5
Position accuracy after 10 sec of outage duration	0.020 m RMS horizontal, 0.020 m RMS vertical, 0.008 degrees RMS pitch/roll, 0.013 degrees RMS heading.

Optional Accessories

Wheel sensor
1,000 pulses per rotation, IP67, integrated time stamping of the wheel sensor data (handled by GNSS controller). Processing of the wheel sensor data is integrated with the Kalman filtering based trajectory computational software. A variety of wheel sizes supported.

Rotational platform
Optional rotational platform is available to provide an alternative scanner or profiler position while maintaining the camera geometry.

Sensor Platform

Weight	51 kg (without case), 86 kg (with case)
Size	60 x 76 x 68 cm, profiler version 60 x 79 x 76 cm, Leica ScanStation P20
Size with case	68 x 68 x 65 cm

Battery

Weight	34.8 kg
Size	65 x 32 x 37 cm

Environmental

Operating temperature	0° C to +40° C, non-condensing
IP protection level	IP52, excluding the scanner. Please refer to scanner documentation.
Storage temperature	– 20° C to +50° C, non-condensing

Typical Accuracy*

Hortizontal accuracy	0.020 m RMS
Vertical accuracy	0.015 m RMS
Conditions	Without control points, open sky conditions

Productivity*

Data produced per project (compressed)	43 GB/h or 1.1 GB/km
Data produced after post processing (images and point cloud)	60 GB/h or 1.5 GB/km
Post processing time	1 hr of data collection equals 1 hr post-processing without colourising, 1 hr of data collection equals 5 hrs of post-processing with colourising.

Export Options

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.

Accuracy Test Conditions*

Scanner frequency	1,000,000 points per second
Image distance	3 m
Driving speed	40 km/h
System configuration	No wheel sensor, no dual antenna
Laser scanner	ZF 9012
Max baseline length	3.2 km

Repeatability*

Based on open sky, GPS+GLONASS processing, and phase differential. Points were measured manually from within the point cloud. A ring with 26 check points were collected 4 times, for a total of 104 observations. Check points were measured with TPS and levelling.

Resulting mean error for X,Y,Z was -0.004,-0.004,0.001 meters, and the resulting standard deviation for X,Y,Z was 0.011,0.012,0.008 meters.

* If not specified, datasheet is refers to a Leica Pegasus:Two with a ZF9012 profiler and an iMAR FSAS IMU. Datasheet is subject to change without notice.

From left to right:
Optional wheel sensor, battery with power cable and rain cover, sensor system.

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