Leica Pegasus:Two
Mobile reality capture

Increase your ROI

Maximise your resources with the fast and efficient digital surveying sensor platform Leica Pegasus:Two. Benefit from the integrated workflow to cut your time in the field by 30 - 50 percent. Whilst getting high returns on your investment, you ensure that no critical aspects of the site are missed and drive the future of the industry.

Generate new revenue streams

Generate multiple revenue streams from one data set by adding additional sensors to this mobile reality capture platform with survey-grade output. The option of fully automated data extraction for state-wide projects and semi-automated data extraction into standard GIS interfaces makes capturing assets for budget planning, maintenance scheduling and road quality easy.

Experience no limits

Don't limit yourself to any terrain by using an entirely vehicle-independent reality capture solution providing calibrated imagery and point cloud data. Road surveying can be executed at vehicle speed and precise georeference cartography of railways, non-intrusive preventative maintenance is made easy whilst reducing surveying time and balancing staff requirements.

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Leica Pegasus:Two 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, Gaileo, and BeiDou constellations, single and dual antenna support, wheel ensor 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, IP 67, integrated time stamping of wheel sensor data (handled by GNSS controller). Processing of 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

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

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BATTERY

Weight	34.8 kg
Size	65 x 32 x 37cm

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, Recap

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.

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

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