Leica Pegasus:Stream
Mobile reality capture

Manage assets, enable Smart Cities

The Pegasus:Stream gives you a complete picture for accurate and current data collection and documentation enabling a smart approach to city planning. Mass digitisation of infrastructure assets has never been faster, more accurate, and safer for your crews. Unlike sole cable locators, it can detect any density change up to 10 m underground whilst continuously flowing with traffic to capture complete views and without blocking the road.

Find objects fast

The Pegasus:Stream not only makes buried objects visible but uncovers potential dangers, such as unintentionally damaging utility assets during construction. With combined laser scanning and imaging above and ground penetrating radar below, you capture the complete view of a targeted area at the highest accuracy and with the fastest deployment. Minimise unnecessary costs by avoiding utility outages and keeping your construction on schedule.

Uncover network leakages

Increase efficiency of water networks and reduce revenue loss by measuring density changes from leaks underground. With laser scanning above and ground penetrating radar below, you can potentially collect up to 100 km per day at 15 km/hr enabling periodic inspections of your complete network in a single pass while providing accurate updated digital GIS and CAD models of the infrastructure.

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Geosystems

Leica Pegasus:Stream specifications

Leica Pegasus:Stream GPR specification

SYSTEM SPECIFICATIONS

Overall weight (PC not included)	228 kg (500 lbs)
Max. acquistion speed (@ std. Scan interval)	18 kph (12mph)
Power consumption	72 W
Positioning	Survey wheel and/or GPS or Total station
Number of control unit	3 synchronized DAD MCH FW
Scan rate per channel: (@512 samples/scan)	87 scans/sec
Scan interval	17 scans/m@200 MHz - 33 scan/m @ 600 MHz
Power supply	SLA Battery 12VDC 100 Ah

ANTENNA SPECIFICATIONS

Environmental	IP65
Antenna foot print	1.84 m Width
Number of channels	38
Antennas central frequencies	200MHz (34 channels) and 600 MHz (4 channels)
Antenna polarisation	Horizontal (HH) and Vertical (VV)
Antenna spacing	6 cm
Certification	EC, FCC, IC

ACCURACY

X,Y	±5 cm (up to 1 m in depth)
Z	±5 % of the depth (up to 1 m in depth)

SOFTWARE SPECIFICATIONS

Output formats	SHP, DWG, DXF
Control	Leica Pegasus MDA control stop/start

SOFTWARE FEATURES

GREG HD 3D CAD
- Tomographic map view (c-Scan) including radar scan fusion
- 3D data visualization
- Advanced targeting using radarscan and tomographic view
- Radarscan viewer, filter and advanced filtering macros, multiple radar scan viewer
- Layer picking for automatic analysis of sub-layers

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

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.

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

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.

* 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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