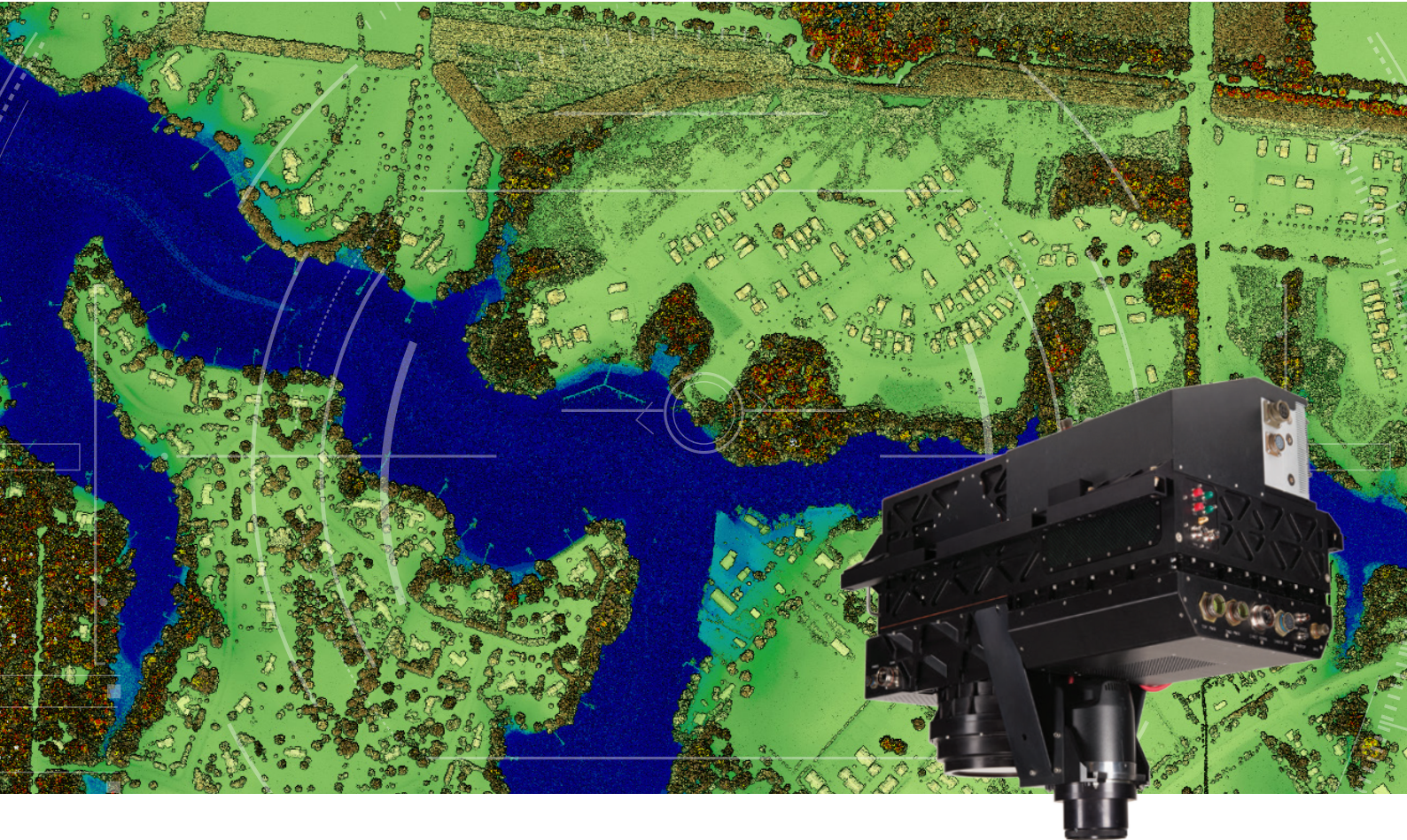


Leica SPL100

Highest efficiency over large areas



Highest efficiency

The Leica SPL100 single photon LiDAR sensor reaches the highest efficiency for large area mapping. This airborne system is best used for state and country wide projects and acquires data at the lowest cost per data point. By collecting 6 million points per second using 100 output beams, the SPL100 is up to 10 times more efficient than any conventional LiDAR sensor.



Fastest processing

SPL100 data is processed using the HxMap high-performance multisensor (LiDAR and imaging) post-processing workflow. This software features the highest data throughput, by eliminating the limitations of single workstation processing. The workflow accelerates data delivery, and reduces training costs. HxMap is modular, scalable and upgradable specific to your needs.



Fine detail

Combining the SPL100 and HxMap, the system offers the productivity launch pad for even the largest LiDAR mapping projects. Creating high-density point clouds, it provides the information needed for applications such as large terrain, flood zone and disaster mapping. Professionals can now base their decisions on the most detailed elevation data, at competitive costs.

- when it has to be **right**

Leica
Geosystems

Leica SPL100 product specifications

SCANNER

Components	1 x Leica SPL100 LiDAR unit 1 x Leica RCD30 CH82 multispectral camera
IMU	SPAN CUS6, CNUS5-H optional
Dimensions	858.8 L x 530.1 W x 611.9 H mm
Weight	83.8 kg

LIDAR UNIT

Beam configuration	10 x 10 array: 100 laser shots per laser pulse
Laser wavelength	532 nm
Laser divergence	0.08 mrad (1/e ² per beam, nominal)
Laser pulse width	400 psec
Laser optical output	5 W average
Eye safety	NOHD < 300 m
Pulse repetition frequency	25 - 60 kHz pulse rate, height dependent (2.5 - 6.0 MHz effective pulse rate)
Return pulses	Up to 10 returns per laser shot, including intensity
Operation altitude ¹	2,000 - 4,500 m AGL
Scanner pattern	Oblique scanner
Scan speed	Programmable up to 25 Hz (1,500 RPM)
Field of view	20° or 30° fixed
Point density ²	Typically 20 points / sqm at 4,000 m AGL
Vertical accuracy ^{2,3,4}	< 8 cm 1 σ
Horizontal accuracy ^{2,3,4}	< 15 cm 1 σ

IMAGING UNIT

Camera Head	Leica RCD30 CH82
Lense	
Standard	Leica NAT-D 80 mm 35.9° FOV across track, 27.4° FOV along track
Optional	Leica NAG-D 50 mm 53.8° FOV across track, 41.8° FOV along track Leica SAT-D 150 mm 19.5° FOV across track, 14.8° FOV along track

Please refer to the Leica RCD30 Series data sheet.

SYSTEM ELECTRONICS

Components	1 x LiDAR Controller 1 x Camera Controller CC33
Dimensions	597.0 L x 508.0 W x 454.1 H mm
Weight	21.8 kg

LIDAR CONTROLLER

Function	Recording raw scanner data
Mass memory	2x removable 63.5 mm SSD, 960 GB and 2000 GB each
Mass memory capacity	2.0 TB and 4.0 TB, > 8.0 h and 16.0 h of data collection

CAMERA CONTROLLER CC33

Function	Controls camera head and LiDAR data logging, includes deeply coupled GNSS/IMU solution
Mass memory	Leica MM30 solid state drive, 600 or 960 GB each CC33 holds up to 2 MM30
Mass memory capacity	Joint volume 1.2 or 1.9 TB, >4.0 h of data collection at typical frame rate

Please refer to the Leica RCD30 Series data sheet for additional CC33 specifications.

PERIPHERALS

Sensor mount	Leica PAV100 Heavy Load gyro-stabilised mount for high-performance data acquisition 673 L x 532 W x 168 H mm 38 kg
Please refer to the Leica PAV100 Series data sheet for additional specifications.	
Operator display	Leica OC60 12.1" screen with 1024 x 768 resolution, designed for installation with Interface Stand IS40
Pilot display	Leica PD60 6.3" screen with 1024 x 768 resolution, designed for cockpit mounting
LiDAR control laptop	Dell Inspiron, 15-inch display, 1920 x 1080 resolution, Windows 7, solid state disc

ENVIRONMENTAL

Pressure	Non-pressurised cabin up to ICAO 18,000 ft
Humidity	0% to 95% RH according ISO7137 (non-condensating)
Operating temperature	-0 °C to 40 °C
Storage temperature	-10 °C to 55 °C

ELECTRICAL

Avg. power consumption of complete system	600 W / 28 VDC
Max. peak power consumption of complete system	1,000 W / 28 VDC
Fuse on aircraft power outlet	1 x 40 A

STANDARDS

RTCA DO-160G, EUROCAE-14G, USA FCC Part 15, EU Directive 2014/30/EU

SOFTWARE

Mission planning	Leica MissionPro
Flight navigation & sensor operation	Leica FlightPro
Post-processing	Leica HxMap – image and LiDAR download, image development and point cloud generation Inertial Explorer – GNSS/IMU processing

¹ Max. operating altitude is achieved at $\geq 10\%$ reflectivity (e.g. dry asphalt) and 100% laser output

² Accuracy and point density stated in the table is acquired @4,000 m AGL, 100 m/s aircraft speed

³ The 1 σ value represents the 68% confidence interval. Typically, the RMSE value is equal to 1 accuracy value

⁴ Vertical and horizontal accuracy estimations are based on the integrated SPAN system and a GPS error of 5 cm

Visible laser radiation, avoid eye or skin exposure to direct or scattered radiation.
Class 4 laser product in accordance with EN/IEC 60825-1:2014.

Illustrations, descriptions and technical data are not binding. All rights reserved.
Printed in Switzerland – Copyright Leica Geosystems AG, Heerbrugg, Switzerland, 2024.
853389en - 08.24