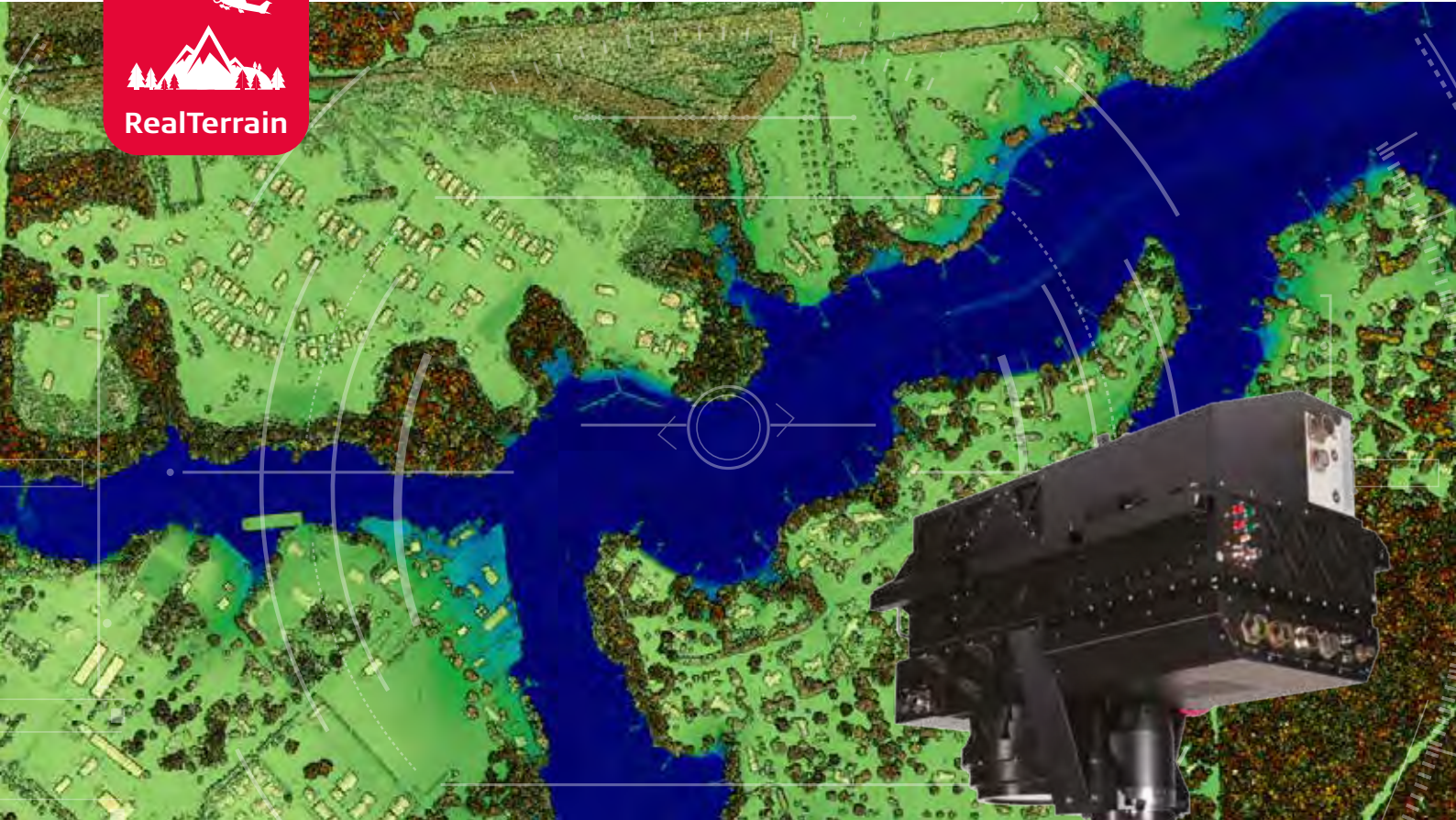


# Leica SPL100

## 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, Leica RealTerrain 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.

# Leica SPL100 product specifications

## SCANNER

<b>Components</b>	1 x Leica SPL100 LiDAR unit 1 x Leica RCD30 CH82 multispectral camera
<b>IMU</b>	SPAN CUS6
<b>Dimensions</b>	858.8 L x 530.1 W x 611.9 H mm
<b>Weight</b>	83.8 kg

## LIDAR UNIT

<b>Beam configuration</b>	10 x 10 array
<b>Laser wavelength</b>	532 nm
<b>Laser divergence</b>	0.08 mrad (1/e <sup>2</sup> per beam, nominal)
<b>Laser pulse width</b>	400 psec
<b>Laser optical output</b>	5 W average
<b>Eye safety</b>	NOHD < 300 m
<b>Pulse repetition frequency</b>	60 kHz (6.0 MHz effective puls rate)
<b>Return pulses</b>	Up to 10 returns per channel per laser shot including intensity
<b>Operation altitude</b> <sup>1</sup>	2,000 - 4,500 m AGL
<b>Scanner pattern</b>	Oblique scanner
<b>Scan speed</b>	Programmable up to 25 Hz (1,500 RPM)
<b>Field of view</b>	20°, 30°, 40° or 60° fixed
<b>Point density</b> <sup>2</sup>	Typically 20 points / sqm at 4,000 m AGL
<b>Vertical accuracy</b> <sup>2,3,4</sup>	< 10 cm 1 $\sigma$
<b>Horizontal accuracy</b> <sup>2,3,4</sup>	< 40 cm 1 $\sigma$

## IMAGING UNIT

<b>Camera Head</b>	Leica RCD30 CH82
<b>Lense</b>	
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

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

## LIDAR CONTROLLER

<b>Function</b>	Recording raw scanner data
<b>Mass memory</b>	2x removable 63.5 mm SSD, 480 GB each
<b>Mass memory capacity</b>	1.0 TB, > 4.0 h of data collection

## CAMERA CONTROLLER CC33

<b>Function</b>	Controls camera head and LiDAR data logging, includes deeply coupled GNSS/IMU solution
<b>Mass memory</b>	Leica MM30 solid state drive, 600 or 960 GB each CC33 holds up to 2 MM30
<b>Mass memory capacity</b>	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

<b>Sensor mount</b>	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.	
<b>Operator display</b>	Leica OC60 12.1" screen with 1024 x 768 resolution, designed for installation with Interface Stand IS40
<b>Pilot display</b>	Leica PD60 6.3" screen with 1024 x 768 resolution, designed for cockpit mounting
<b>LiDAR control laptop</b>	Dell Inspiron, 15-inch display, 1920 x 1080 resolution, Windows 7, solid state disc

## ENVIRONMENTAL

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

## ELECTRICAL

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

## STANDARDS

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

## SOFTWARE

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

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

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

<sup>3</sup> The 1 $\sigma$  value represents the 68% confidence interval. Typically, the RMSE value is equal to 1 accuracy value

<sup>4</sup> 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, 2017.  
853389en - 02.17

Leica Geosystems AG  
www.leica-geosystems.com



printed by aerial-survey-base.com

© 2017 Hexagon AB and/or its subsidiaries and affiliates. Leica Geosystems is part of Hexagon. All rights reserved.

- when it has to be **right**

**Leica**  
Geosystems