Leica DMC III

Breaking new ground. Always.

+25,000 PIXELS

World's largest swath

Based on the all-new CMOS sensor, specifically engineered for airborne applications, the Leica DMC III mapping solution is breaking new ground. With the most efficient workflow available, this camera offers the world's largest swath generated by a single frame capturing 25,000+ pixels across.

CMOS

Revolutionary CMOS technology

The Leica DMC III is the first large format camera using CMOS sensor technology reaching beyond the limitations of traditional CCD technology. The sensor captures more information with 100% increase in dynamic range and unsurpassed image quality thanks to less image noise and almost zero blooming.

Most efficient & intuitive workflow

The intuitive common data processing platform RealWorld features a simple yet powerful workspace that allows the user to easily manage even the largest data sets. Starting from data download, raw QC to basic data management, it guides you through the sensor-specific processing steps.

PART OF HEXAGON

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Leica Geosystems

Leica DMC III product specifications

PAN

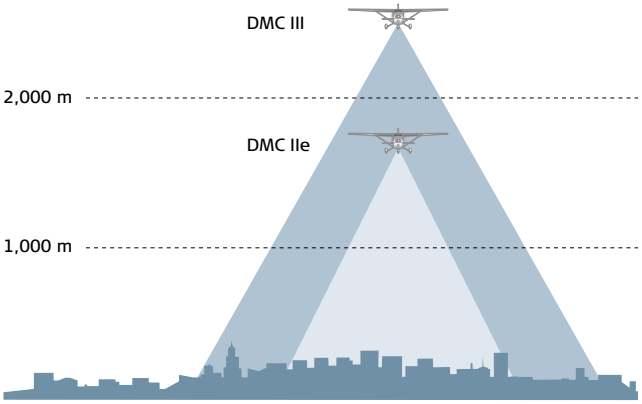
Pixel across track	25,728
Pixel along track	14,592
FoV across track	57.2°
FoV along track	34.4°
Focal length	92 mm
Pixel size	3.9 µm
GSD@500m	2.1 cm

MS

Pixel across track	8,956
Pixel along track	6,708
FoV across track	61.7°
FoV along track	48.2°
Focal length	45.0 mm
Pixel size	6.0 µm
GSD@500m	6.7 cm

GENERAL

B/H	0.25
Number of camera heads	5
PAN: colour resolution	1 : 3.1
Frame rate	1.9 sec
Colour channels	R,G,B, NIR
Resolution per pixel	14-bit
FMC, mechanical	Yes
Dynamic range (CMOS)	78 dB
Onboard storage	9.6 TB to store up to 7900 images
Weight	63 kg
Power consumption	280 W, camera incl. MM30 storage modules
Altitude non pressurised	25,000 ft (7,620 m)
Operating temperature Camera control electronic Optics	 0 °C to +40 °C, upper part - 20 °C to + 40 °C, lower part

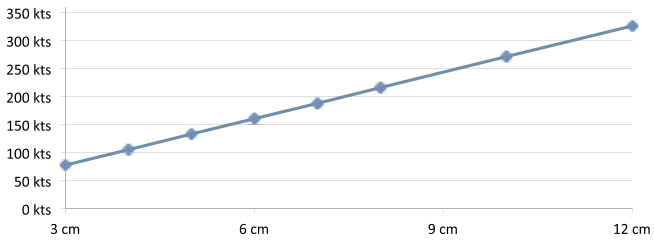


Leica DMC IIe 230 compared to DMC III

MAXIMUM GROUND SPEED

GSD	60 % forward overlap	80 % forward overlap
3 cm	161 kts	81 kts
4 cm	213 kts	108 kts
5 cm	267 kts	135 kts
6 cm	325 kts	162 kts
7 cm	370 kts	189 kts
8 cm	431 kts	215 kts
10 cm	541 kts	271 kts
12 cm	640 kts	319 kts
15 cm	781 kts	406 kts
20 cm	1,074 kts	537 kts
25 cm	1,343 kts	671 kts
30 cm	1,611 kts	806 kts

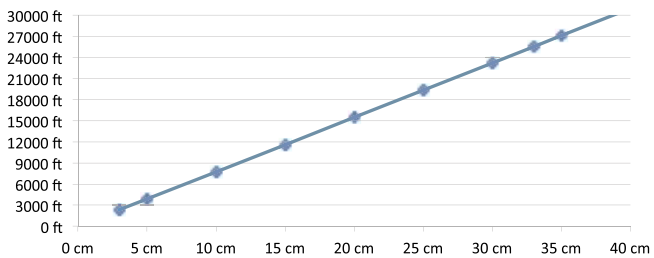
Maximum ground speed 80 % forward overlap



FLYING HEIGHT AND SWATH WIDTH

GSD	Flying height (m)	Flying height (ft)	Swath width
3 cm	708 m	2,322 ft	783 m
5 cm	1,179 m	3,870 ft	1,306 m
10 cm	2,359 m	7,739 ft	2,611 m
15 cm	3,538 m	11,609 ft	3,917 m
20 cm	4,718 m	15,479 ft	5,222 m
25 cm	5,897 m	19,349 ft	6,528 m
30 cm	7,077 m	23,218 ft	6,528 m
33 cm	7,785 m	25,540 ft	8,617 m
35 cm	8,256 m	27,088 ft	9,139 m
40 cm	9,436 m	30,958 ft	10,445 m
45 cm	10,615 m	34,827 ft	11,750 m

Flying height and swath width



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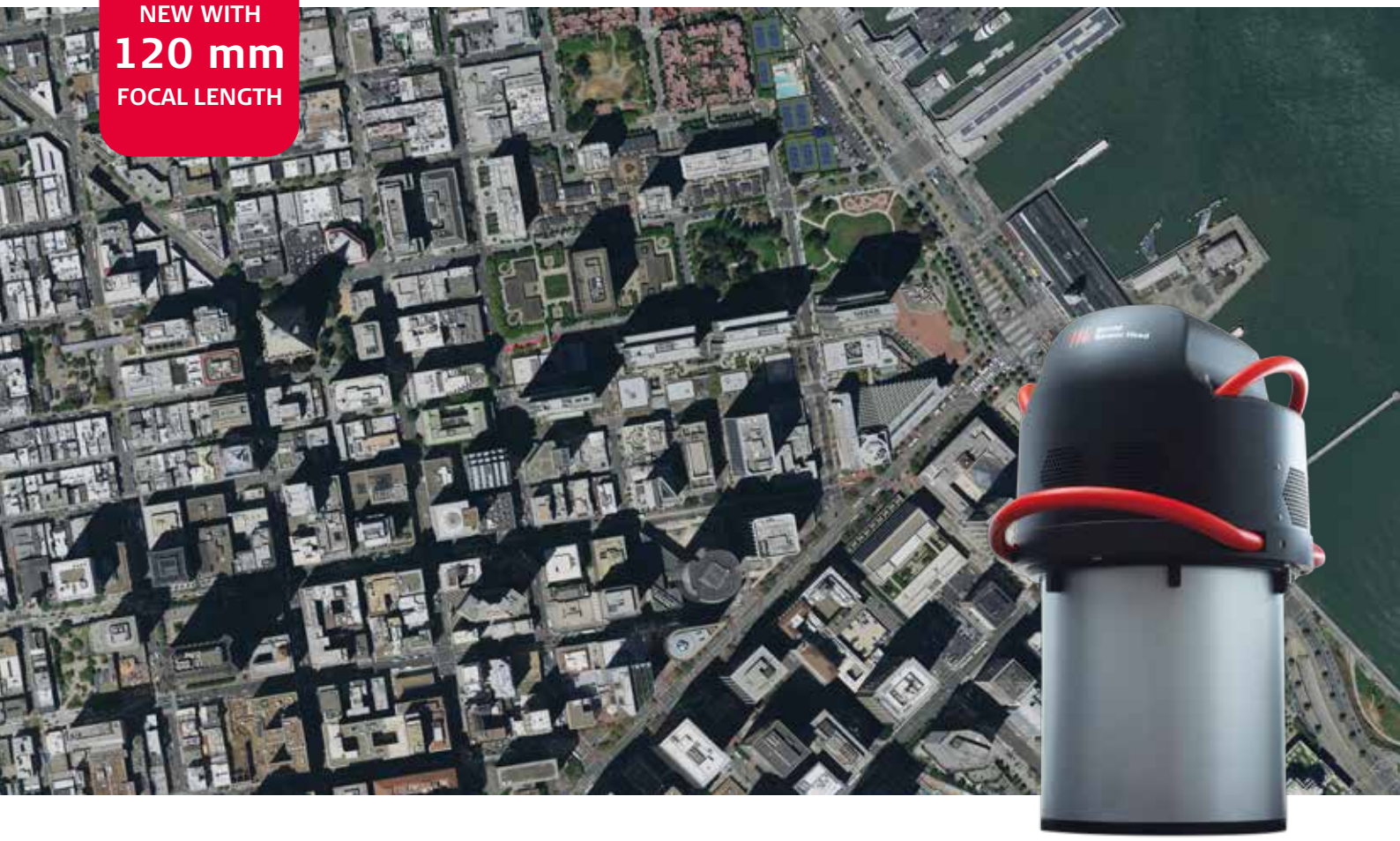
Leica Geosystems

Leica ADS100

Airborne digital sensor – airborne evolution

NEW WITH
120 mm
FOCAL LENGTH



Increased image quality

With its unique features, the Leica ADS100 is designed to meet the 21st century airborne imaging needs. A full multispectral colour swath width of 20,000 pixels in RGBN guarantees the highest data acquisition efficiency, and full colour RGBN in the forward, nadir and backward offers more flexibility for stereo interpretation.

Reduced flight time

The Leica ADS100 product family continues to lead the way in airborne evolution. The improved cycle time allows you to acquire smaller GSD at faster speed, and the 120 mm focal length increases ground resolution, making the ADS100 SH120 the perfect sensor for urban mapping and high altitude data collection applications.

Fastest processing speed

The Leica ADS100 features embedded Novatel SPAN GNSS/IMU with tightly coupled processing to reduce fuel consumption. End-to-end workflow from mission planning with Leica MissionPro to orthophoto and point cloud generation with Leica XPro let you collect and process data at the highest level of performance.

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Leica Geosystems

Leica ADS100 product specifications

CHARACTERISTICS OF DATA ACQUISITION

Focal plate (FPM)	Total of 13 CCD lines with 20,000 pixels each in three line groups (forward, nadir, backward), pixel size 5um, TDI stages selectable 1, 2, 4, 8, 15 (1/2, 1/4, 1/8, 1/16 @ Cycle time > 1 ms) Two tetrachroid beamsplitters in forward (14°), full colour RGBN and backward (10.4°), full colour RGBN one bi-tetrachroid in nadir, full colour RGGBN (green staggered)
Dynamic range of CCD	72 dB
Resolution A/D converter	14-bit
Data channel	16-bit
Data compression	Lossless 14-bit
Recording interval per line (cycle time)	> 0.5 ms

SPECTRAL RANGE

Spectral range	Red, green, blue, near-infrared
Spectral bands	
Red	619 – 651 nm
Green	525 – 585 nm
Blue	435 – 495 nm
NIR	808 – 882 nm

OPTICS DO120

Field of view (FoV)	
SH100	Forward 65.2° across track Nadir 77.3° across track Backward 71.4° across track
SH120	Forward 36.9° across track Nadir 45.2° across track Backward 41° across track
Focal length	
SH100	62.5 mm
SH120	120 mm
F-number	4
Registration accuracy	1 um
Lens design	Telecentric lens design. Maintains position and width of filter edges over whole FoV. Thermic and pressure compensation for high accuracy.
Flying height multiplier	
SH100	12,500 : 1, 10 cm GSD = 1,250 m AGL
SH120	24,000 : 1, 10 cm GSD = 2,400 m AGL

MECHANICAL INTERFACE

Sensor head	
Weight, height, diameter	
SH100	50.5 kg with CUS6 IMU, 67 cm, 39 cm
SH120	46.5 kg with CNUS5H IMU, 67 cm, 39 cm
Camera controller CC33	
Weight with MM30	6.5 kg
L x W x H	300 x 260 x 140 mm, usable with Leica RCD30 series, Novatel SPAN embedded
Mass memory MM30	Solid state drive 1,600GB per MM30, Standard ¾" slot, weight 0.5 kg, removable, portable
Leica operator console OC60	12.1" touch-screen with 1024 x 768 resolution, sunlight readable
Leica pilot display PD60	6.5" screen with 1024 x 768 resolution, quick access buttons
Interface stand IS40	IS40 stand fits RC30 NAV-sight installation
IMU integrated in sensor head	Novatel SPAN CNUS5H IMU integrated
GNSS/IMU system	Novatel SPAN embedded in CC33 (GPS, GLONASS and BeiDou)
Mount	New Leica PAV100 high performance gyro-stabilised mount with adaptive control
Total weight installed	
SH100	~120 kg
SH120	~130 kg

IN-FLIGHT QUALITY CONTROL

Video camera	
SH100	
Oblique view	17° forward
Swath width	55° along x 77° across track
SH120	
Oblique view	6° forward
Swath width	33° along x 44° across track
Waterfall images	Waterfall images during flight available for RGB nadir
Leica FlightPro	Full control of data acquisition parameters

OPERATIONAL

Capacity of mass memory	Joint volume 3.2 TB; recording time depending on data acquisition configuration; MM30 hot-swappable in flight.
Firmware & software	Leica FlightPro Flight Management Software
Average ground speed (GS) for various GSD @ 0.5 ms CT	GS = 120 kts for GSD of 1.2" / 3 cm GS = 190 kts for GSD of 2" / 5 cm GS = 290 kts for GSD 3" / 7.5 cm GS = > 350 kts for GSD 4" / 10 cm

ENVIRONMENTAL

Pressure	Non-pressurised cabin up to ICAO 25,000 ft (7,620 m)
Humidity	0 % to 95 % RH according ISO7137
Operating temperature	– 20 °C to + 55 °C
Storage temperature	
SH100	– 40 °C to + 85 °C
SH120	– 40 °C to + 70 °C

ELECTRICAL

Average power consumption incl. SH120, CC33, PAV100 High Performance, OC60, PD60	350 – 700 W / 28 VDC
Fuses on aircraft power outlet	Typically 1 x 35 A or 1 x 50 A

STANDARDS

General standards for temperature & electronic environment	ISO 7137, RTCA DO -160G, EUROCAE -14G
Conformity to national regulations	USA: FCC Part 15, EU: Directive 2004/108/EG

POST PROCESSING AND DATA FORMAT

Output from XPro post-processing	TIFF tiled

COMMON SENSOR PLATFORMS

The Leica ADS100 product family supports unified aircraft installation. All components, such as the Leica PAV100 high-performance, camera controller CC33 and the operator and pilot displays, can be shared with the Leica RCD30 medium format and oblique cameras, thus significantly reducing cost of ownership and simplifying operation.

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Leica Geosystems

Leica CityMapper
More information, smarter decisions

RealCity

Capture more

Leica CityMapper is the world's first hybrid airborne sensor specifically designed for urban mapping. One sensor provides oblique and multispectral nadir imagery as well as LiDAR data. Collect all you need to create any 2D or 3D geospatial data product essential for smart city applications. Discover the most efficient way to capture airborne data in urban areas.

Process faster

Leica HxMap is the high-performance multisensor workflow featuring the industry's fastest data throughput. Process the data captured with the CityMapper in one simple, intuitive user interface and generate the SmartBase, a comprehensive geospatial base layer, at the push of a button. HxMap is modular, scalable and upgradable specific to your needs.

Work smarter

By combining the CityMapper with HxMap, Leica RealCity offers the foundation to make smart decisions in rapidly changing urban environments. It is the fastest and most efficient way to create all geospatial information layers. The SmartBase consists of up-to-date and highly accurate 2D products and 3D models, all generated from simultaneously acquired data.

Leica CityMapper product specifications

(preliminary)

CITYMAPPER POD

Consists of	1 x Leica RCD30 CH82 multispectral camera in nadir 4 x Leica RCD30 CH81m oblique camera, viewing angle 45° 1 x Leica Hyperion LiDAR unit
IMU	SPAN CNUS5-H, no export license required US ECCN 7A994
Height / diameter	747 mm / 408 mm
Weight	65 kg

Designed for installation in Leica PAV100 HeavyLoad and Leica PodLifter HeavyLoad.

SOFTWARE

Mission planning	Leica MissionPro
Flight navigation & sensor operation	Leica FlightPro
Post-processing	Inertial Explorer – GNSS/IMU processing software Leica HxMap

CAMERA HEAD LEICA RCD30 CH82

CCD size (80MP)	10,320 x 7,752 pixels
Pixel size (80MP)	5.2 um
Dynamic range of CCD	73 dB
Resolution A/D converter	14-bit
Data channel	16-bit lossless compressed
Maximum frame rate	1.5 sec
Motion compensation	Mechanical, bi-directional
Spectral range	RGB and NIR (780-880 nm), co-registered
Viewing angle	Nadir
Weight (w/o lens)	3.1 kg
Height / diameter	168 mm / 128 mm
Optics (standard configuration)	Leica NAT-D 80 mm
Optics weight / height	0.5 kg / 46 mm
Shutter	Central shutter, user replaceable (~200,000+ frames)
Aperture	Automatically controlled aperture 2.8, 4, 5.6, 8
Lens mount	Precise bayonet connection, automated electrical connection, stabilised connection mechanics

CAMERA HEAD LEICA RCD30 CH81M

CCD size (80 MP)	10,320 x 7,752 pixels
Pixel size (80 MP)	5.2 um
Dynamic range of CCD	73dB
Resolution A/D converter	14-bit
Data channel	16-bit lossless compressed
Maximum frame rate	1.5 sec
Motion compensation	Mechanical, in flight direction
Spectral range	RGB
Viewing angle	45° (others upon request)
Weight (w/o lens)	2.1 kg
Height / diameter	138 mm / 128 mm
Optics (standard configuration)	Leica SAT-D 150 mm
Optics weight / height	0.8 kg / 95 mm
Shutter	Central shutter, user replaceable (~200,000+ frames)
Aperture	Automatically controlled aperture 4, 5.6, 8, 11
Lens mount	Precise bayonet connection, automated electrical connection, stabilised connection mechanics

LEICA HYPERION LIDAR UNIT

Laser wavelength	1,064 nm
Laser divergence	0.25 mrad ($1/e^2$)
Pulse repetition frequency	Up to 700 kHz
Return pulses	Programmable up to 15 returns, including intensity, pulse width, area under curve and skewness waveform attributes Full waveform recording option at down-sampled rates
Operation altitude [1]	300 - 2,500 m AGL
Scanner pattern	Oblique scanner, various scan patterns
Scan speed	Programmable up to 100 Hz (6,000 RPM)
Field of view	40°
Swath width	Up to 70% of flight altitude
Point density [2]	Typically 8 points per square metre at 1,000 m altitude
Ranging accuracy [2, 3, 4]	< 2 cm RMS
Vertical accuracy [2, 3, 5]	< 6 cm 1 σ
Horizontal accuracy [2, 3, 5]	< 25 cm 1 σ
Dimensions L x W x H	252 x 190 x 485 mm
Weight	12 kg

CAMERA & LIDAR CONTROLLER CC33

CC33	Controls all camera heads and LiDAR unit, includes deeply coupled GNSS/IMU solution
Weight (without MM30)	6.1 kg
Dimensions L x W x H	300 x 260 x 140 mm
Processor	64-bit WIN7, 8GB RAM, 32 GB flash, USB 2.0, SATA
Mass memory	Leica MM30 solid state drive 2,400 GB CC33 holds up to 2 MM30s
Mass memory weight	0.5 kg; removable and portable
Mass memory capacity	Joint volume 4.8 TB, > 4.5 h of data collection at max. rate

PERIPHERALS

Sensor mount	Leica PAV100 HeavyLoad gyro-stabilised mount for high-performance data acquisition
L x H x W	673 x 532 x 168 mm
Weight	38 kg
Pod lifter	Leica PodLifter HeavyLoad to lift up the entire Leica CityMapper pod for takeoff and landing, 20 kg
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

ENVIRONMENTAL

Pressure	Non-pressurised cabin up to ICAO 15,000 ft
Humidity	0% to 95% RH according ISO7137 (non-condensating)
Operating temperature	-10 °C to 40 °C
Storage temperature	-40 °C to 70 °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 50A

STANDARDS

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

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

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[1] Maximum operating altitude is achieved at ≥10% reflectivity (e.g. dry asphalt) and 100% laser output
[2] Accuracy and point density stated in the table is acquired @1,000 m AGL, 60 m/s aircraft speed
[3] The 1σ value represents the 68% confidence interval. Typically, the RMSE value is equal to 1 accuracy value
[4] Ranging accuracy here refers to the measurement accuracy of LiDAR, not including GNSS/IMU error
[5] Vertical and horizontal accuracy estimation here are made based on the integrated SPAN system and a GPS error of 5 cm

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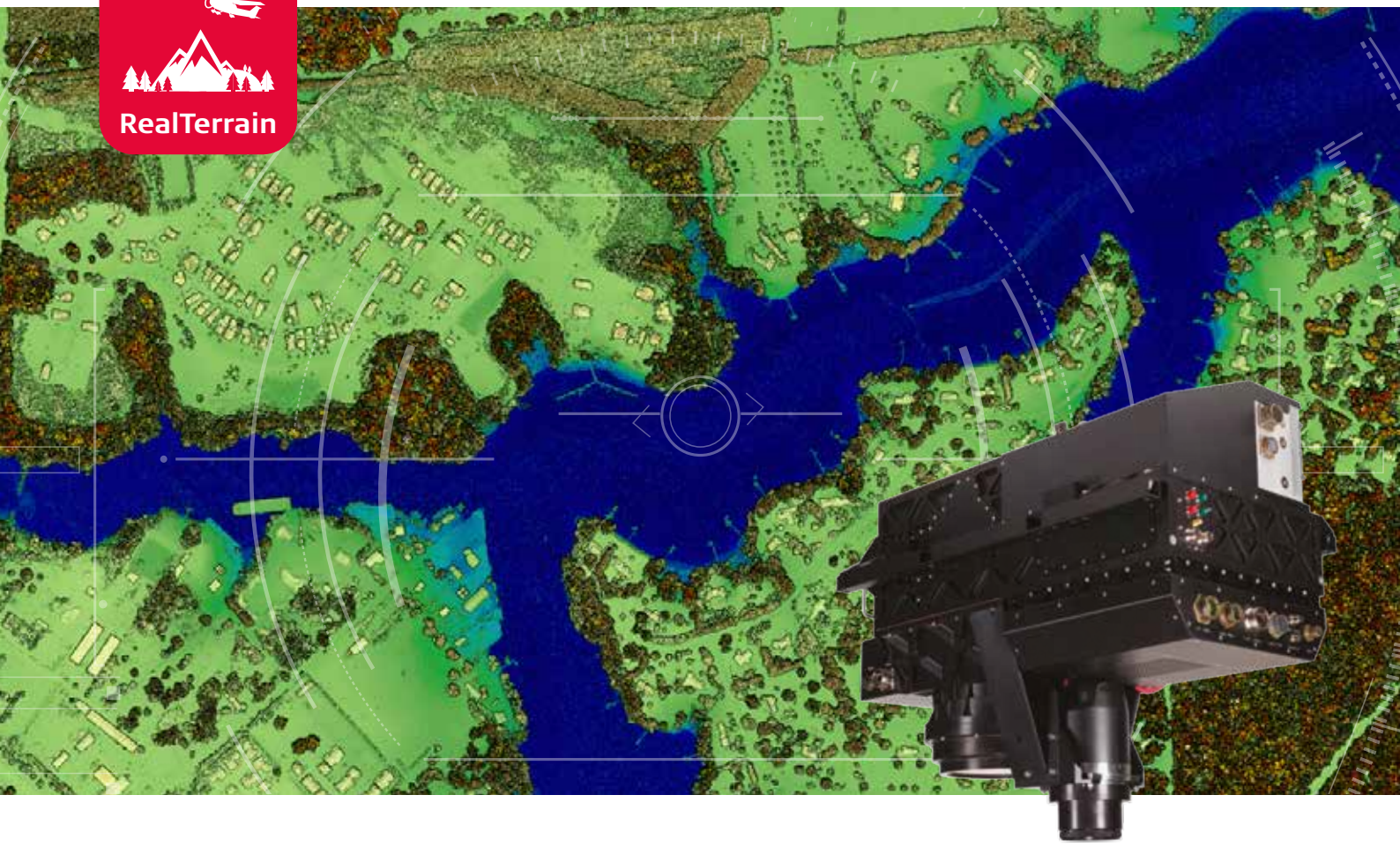
Leica Geosystems

Leica SPL100
Highest efficiency over large areas

RealTerrain



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

Components	1 x Leica SPL100 LiDAR unit 1 x Leica RCD30 CH82 multispectral camera
IMU	SPAN CUS6
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
Laser wavelength	532 nm
Laser divergence	0.08 mrad (1/e² per beam, nominal)
Laser pulse width	400 psec
Laser optical output	5 W average
Eye safety	NOHD <300 m
Pulse repetition frequency	60 kHz (6.0 MHz effective puls rate)
Return pulses	Up to 10 returns per channel 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°, 30°, 40° or 60° fixed
Point density [2]	Typically 20 points / sqm at 4,000 m AGL
Vertical accuracy [2, 3, 4]	< 10 cm 1 σ
Horizontal accuracy [2, 3, 4]	< 40 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, 480 GB each
Mass memory capacity	1.0 TB, > 4.0 h of data collection

CAMERA CONTROLLER CC33

Funtion	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
Dimensions	673 L x 532 W x 168 H mm
Weight	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 ≥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 1σ 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.

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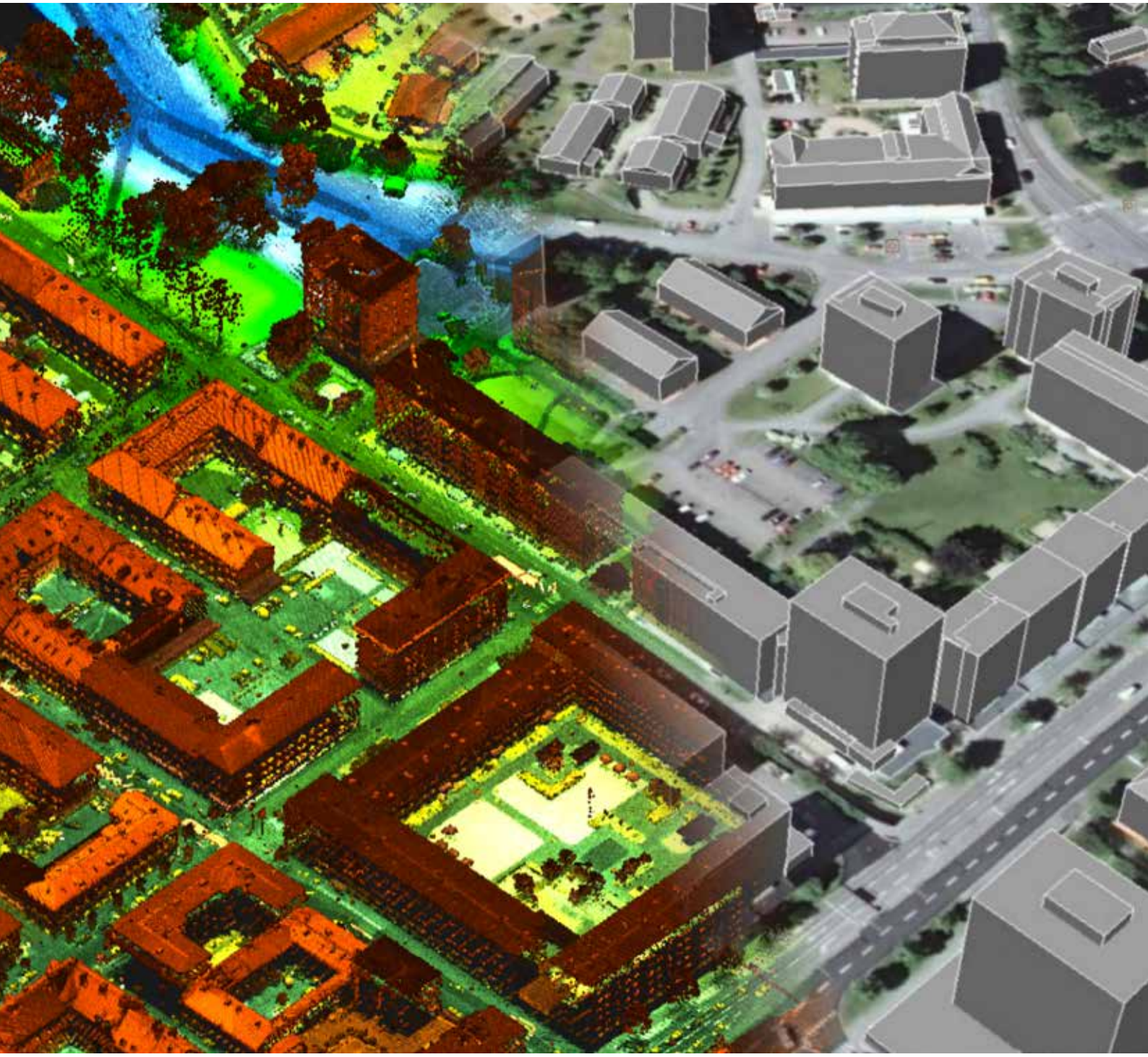
Airborne Topographic LiDAR Solutions

Efficiency & accuracy



PART OF HEXAGON

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Leica Geosystems

Leica ALS80 & DragonEye – efficiency & accuracy for all applications

Real-world efficiency is what defines your ability to execute survey projects quickly and accurately. With five system offerings, each providing outstanding flexibility, you will find the one that meets your needs and helps you to excel on the contracts you need to fulfil tomorrow and beyond. Whether your application involves providing detailed, high-point-density city models or covering vast expanses of remote terrain with big terrain relief, Leica Geosystems topographic LiDAR systems deliver best-in-class efficiency with the highest pulse rates at all flying heights.

You work in the real world with real environments and real targets. The topographic LiDAR sensor family offers options for high temperature operations up to 40 °C and flying heights to 5,000 m AGL. All systems provide sensitivity to capture even low reflectivity targets like recently paved roadways or small features like shield wires on power transmission corridors.

Efficiency from low to high altitudes

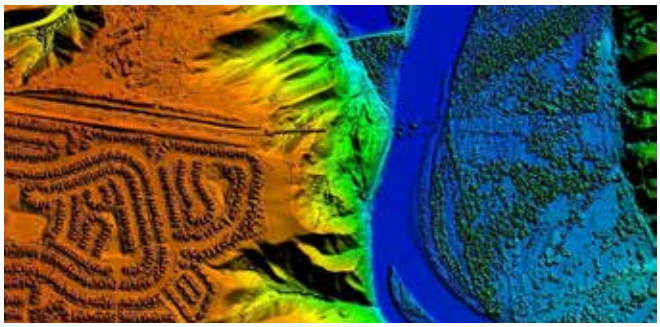
Leica DragonEye features on-the-fly, waveform-to-range data conversion without extra data storage and ground processing burdens. Leica ALS80 features time-proven, accurate, discrete return range and intensity data measurement with models capable of operation up to 5 km flying height and covering nearly 8 km swath, all with real world, low reflectivity targets. Both systems feature high-speed workflows to complement their industry-leading acquisition speeds.

Different scans for different plans

Leica DragonEye, with its unique oblique scan pattern, is ideal for low-aspect-ratio urban environments and utility mapping where high detail on vertical surfaces is needed. Leica ALS80, with adjustable FOV and 3 planar scan patterns, provides ultimate flexibility and altitude capability. Both offerings provide effective pulse rates up to industry leading 1.0 MHz for maximum data acquisition productivity and reduced flight times.

One flight, more unique data products

Both sensors feature fully integrated imaging systems. The unique Leica RCD30 camera is available in a variety of resolutions and focal lengths, and in 3-band or 4-band variants, allowing you to tailor the imaging sensor to precisely suit your mission. All systems offer optional full-waveform recording capabilities for specialised applications while also providing high quality point cloud data fused with image data for ultimate flexibility in decision making.

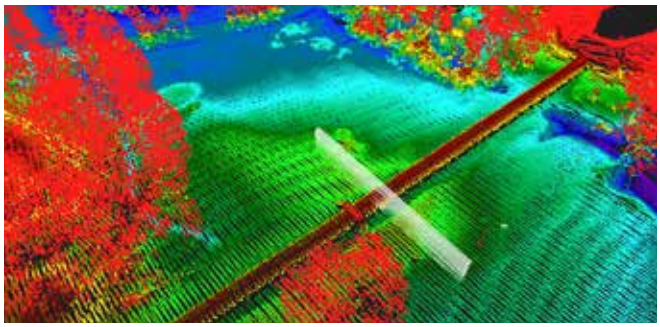


WIDE-AREA MAPPING WITH LEICA ALS80

- High AGL capability and wide FOV range for large-area coverage
- Outstanding pulse rates at all flying heights for maximum productivity
- Small beam divergence increases planimetric accuracy, even from maximum flying heights
- Adjustable FOV and scan patterns for ultimate flexibility in point density over any terrain type

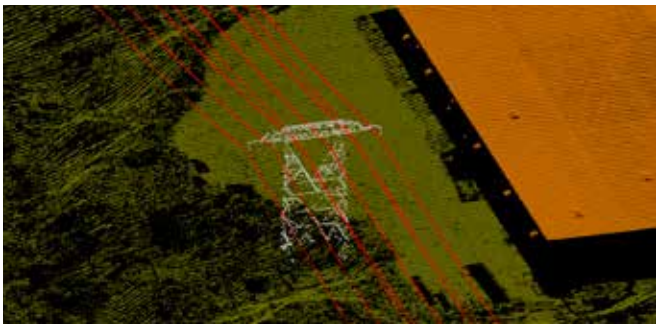
CITY MODELLING WITH LEICA DRAGONEYE

- Oblique scan with each surface measured from multiple vantage points enhances detail on vertical surfaces
- Fused RGB imagery allows easier separation of vegetation near buildings, producing cleaner building models
- PAV100 gyro-stabilised mount installation minimises the need for side overlap, maximising efficiency at low flying heights typical for city modelling
- Low range jitter for smooth building models



PIPELINE (ALL MODELS)

- High point density for proper modelling and localisation of pipelines
- High accuracy at high point density for easy detection of erosion around supporting structures and access paths
- Wide swath capability for acquisition of entire right-of-way without multiple flights
- High scan rates allow data acquisition from low-cost fixed-wing aircraft



POWER LINE (ALL MODELS)

- High sensitivity for detection of small ground wires, guy-wires and small vegetation
- Small beam divergence reduces position error on small targets
- High accuracy measurement of ground and vegetation clearance for line re-rating and vegetation management
- Internal and pod installations available for maximum platform flexibility

Cost-saving common sensor platforms

Leica Geosystems is the only provider offering imaging and LiDAR solutions based on a common sensor platform of system peripherals and software. Users can share components and common operator and pilot interfaces between systems for simple, consistent installation across all airborne sensors, providing synergies in ground handling and operator training regardless of the array of systems employed. Likewise, common mission planning makes it efficient for a small workforce to plan for a wide variety of missions, all from a familiar planning interface. This results in efficient workflow, reduced training and cost savings.

OC60 operator console and PD60 pilot display with FlightPro flight navigation and sensor control software

PAV100 gyro-stabilised mount

MissionPro mission planning software

Airborne Bathymetric LiDAR Solutions

Proven productivity

PART OF HEXAGON

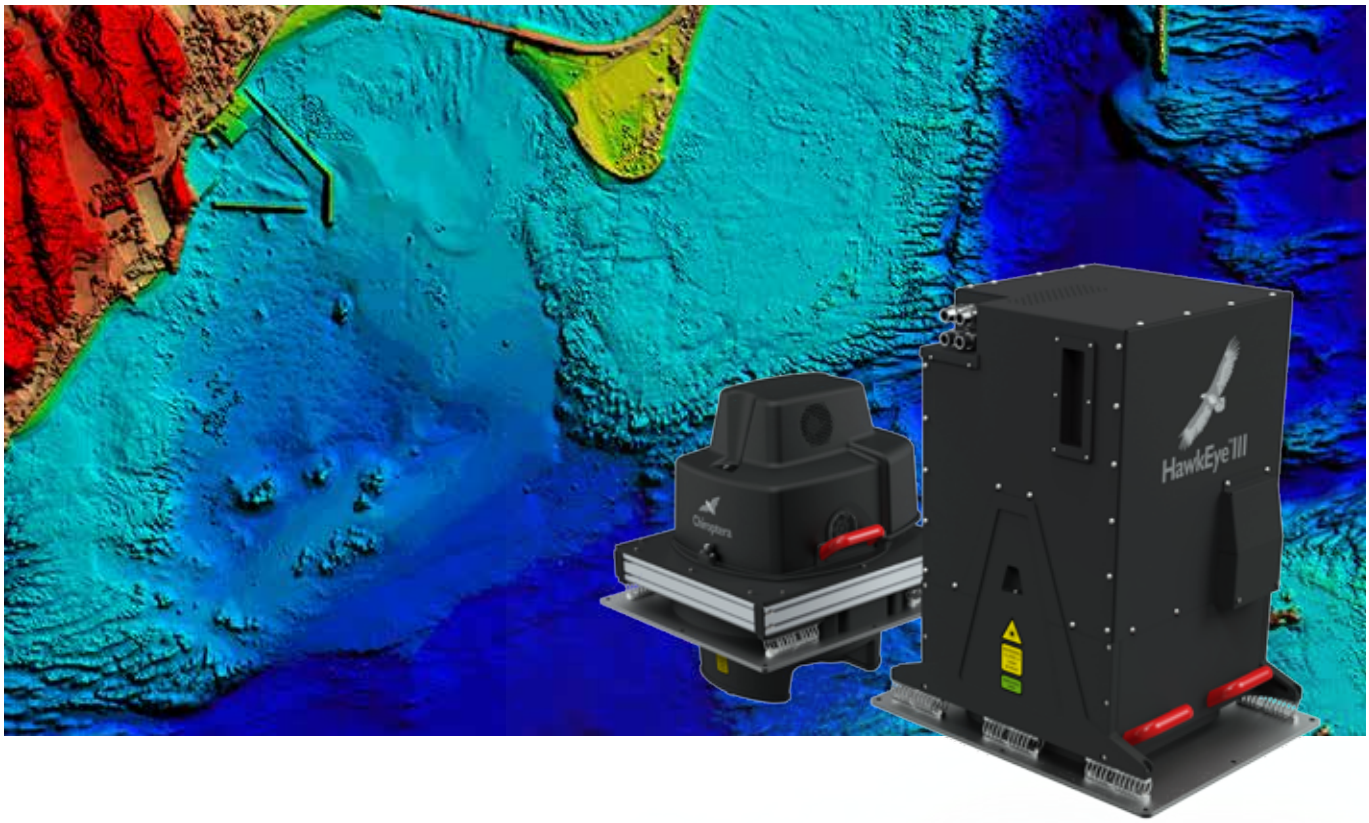
- when it has to be **right**

Leica Geosystems

Leica Chiroptera II & HawkEye III – for deep & shallow water surveys

The Leica Chiroptera II and HawkEye III are combined airborne bathymetric and topographic multi-sensor LiDAR systems providing full seafloor coverage and topographic data from onshore. The data delivered by the sensors is completely seamless from the seabed (bathymetry) onto land (topography). Both systems use the unique oblique LiDAR technology that illuminates the seafloor and objects from multiple angles, maximising coverage. The oblique LiDAR technology is superior for object detection and vertical coverage on land and in water.

Leica Chiroptera II is equipped with one bathymetric channel for nearshore surveys down to approximately 15 m depth and has one 500 kHz topographic channel. The Leica HawkEye III combines the performance of the Leica Chiroptera II with an additional bathymetric channel for depth penetration to approximately 50 m. Both systems include an 80 MP Leica RCD30 camera (RGBN).



Most efficient method for coastal surveys

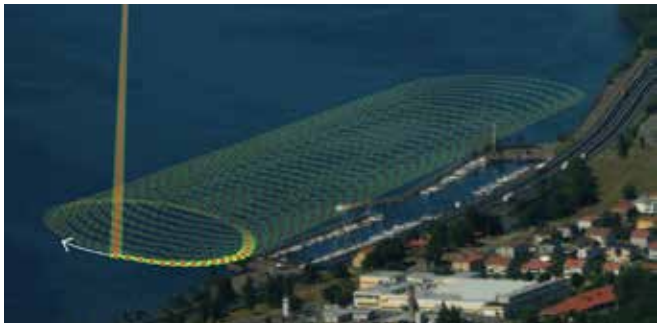
Perform topographic and hydrographic data collection at the same time. Leica Chiroptera II and HawkEye III incorporate scanners optimised for their respective applications: high-pulse rate topographic scanning for maximum detail and powerful bathymetric scanning to maximise water penetration and obstruction detection. Use Leica Chiroptera II for nearshore and inland waters and Leica HawkEye III for ultimate penetration in deeper waters.

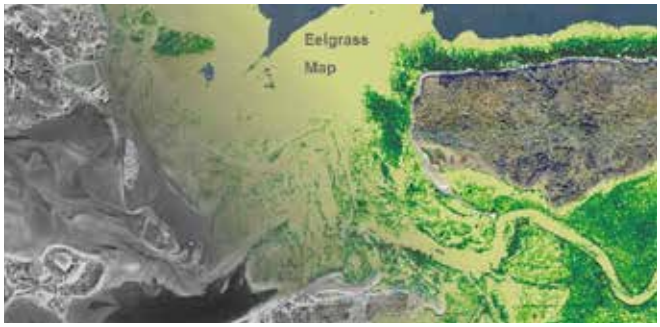
Poor visibility? No problem.

The Leica Chiroptera II and HawkEye III provide industry-leading maximum depth as well as the ability to punch through water with less than optimal visibility. The LiDAR sensor family is field-proven in applications around the world in a variety of water conditions, including nearshore, at sea and turbid inland waters. Ultimate depth penetration is only possible if both hardware and workflow come together to overcome the challenges of poor water clarity.

World's most complete & competitive workflow

Process waveforms and position data, perform calibrations, extract the water surface, correct for refraction, and incorporate four-band camera data, all with one software – the Leica LiDAR Survey Studio (LSS). Increase your work efficiency by incorporating all phases of your project, from mission planning and execution to data delivery in a variety of formats, including fused images, seabed reflectance, classified point clouds and RGB/CIR images.



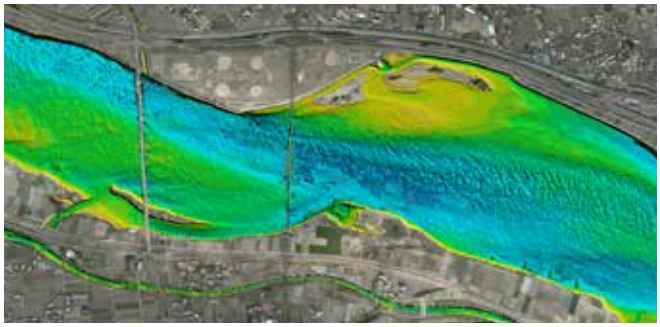


NEARSHORE CHARTING

- Charting according to S-44 standards
- Onshore, shoreline and seamless data down to the seabed
- Obstruction detection with oblique LiDAR
- Maximum depth penetration in turbid water conditions

SEABED CLASSIFICATION

- Reflectance and intensity data available
- Seabed and substrate classification
- Geology and geomorphology
- Coastal processes and erosion



RIVER SURVEYS AND INLAND WATERS

- Flood mapping and prediction
- Disaster management
- Geomorphology studies

ENVIRONMENTAL MONITORING

- Marine ecology
- Submerged vegetation and habitat mapping
- Aquaculture: area selection and monitoring
- Hydrodynamics

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