CHCNAV

Alpha3D-L Dual

MOBILE MAPPING SOLUTION

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MAPPING & GEOSPATIAL

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MID-RANGE GIS MOBILE MAPPING SOLUTION

Alpha3D-L Dual is an affordable mobile mapping solution that combines two Hesai Pandar XT32M laser scanners, a LadyBug5+ panoramic HDR imaging camera with a high-precision satellite receiver and high performance IMU system in one lightweight, rugged and compact body, keeping Alpha DNA with focus on GIS applications. All these features make Alpha3D-L Dual one of the most advanced and efficient 3D mobile mapping system in mid-range segment.

EFFICIENT LASER SCANNING

Dual head system with long-range scanning up to 300 m and high linear accuracy of 10 mm. Extremely high-speed measurement of 1.92 M points per second. High point cloud density and no unscanned areas because scanners are located at different angles.

MANAGE PROJECTS WITH COPRE SW

As an expert in mobile mapping data collection CHCNAV also want to provide efficiency of data processing and for this CoPre supports one-button click automated processing of point cloud, picture georeferencing, point cloud colorization, and results output.

VEHICLE INDEPENDENT PLATFORM

Easily mounted on different type of vehicles, trains, railway trolleys and boats. Whatever the task is, the Alpha3D-L Dual rapidly and efficiently collects high density, accurate point clouds and images data, but also adds extra information from additional sensors, such as high-resolution camera, thermal camera, GPR, echo-sounder or extra profiler.

GET NEW REVENUE AND INCREASE ROI

Collect more data faster and boost productivity. The combination of point clouds, high-resolution images and additional sensors, eliminates the need of returning to site for further measurements. Versatile data measurement types allow geospatial professionals to expand into new industries and applications.

HIGH RESOLUTION 360° IMAGES

30 MP HDR panoramic camera with superb image quality. Support fully calibrated point clouds and panorama images. You can add additional imagery sensors to get extra information whenever your application needs.

CAPTURE DATA WITH COCAPTURE

Browser-based operation application. Simple and intuitive, CoCapture manages the mission parameters setup, internal components checks and automatically capture data via your devise, supporting any operation system.

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ACCURATE 3D DATA CAPTURE

Laser Scanner

Dual head system to avoid unscanned areas and provide better density

HDR Camera

30 MP HDR panoramic camera for point cloud colorization or separate photogrammetry data analysis.

High Connectivity

Add additional devise such as GAMS, DMI sensor or echosounder.

Independent Platform

Mounted on different type of vehicles, also support train, trolley, and boat installation.

SPECIFICATIONS

General system performance	
Number of laser scanners	Dual head scanner system
Horizontal accuracy	< 0.030 m RMS (typical)
Vertical accuracy	< 0.030 m RMS (typical)
Accuracy conditions	Without control points, open sky conditions
Control unit	Internal multi-core industrial PC, low power consumption
Field software	CoCapture, browser-based, no installation required
Control interface	BYOD (any tablet or laptop), WiFi or LAN cable connection
Data storage	Removable 2 TB SSD hard disk with USB3 interface
3rd party hardware synchronization	1 x synchronization port for 2nd GNSS antenna 2 x RS232 synchronization ports (NMEA support)
Mounting	Vehicle independent solution, suits for road, rail and water-based application

Laser scanner	
Laser class	1 (in accordance with IEC 60825-1:2014)
Effective measurement rate (1)	3.84 MHz
Maximum range, target reflectivity > 80% (2)	300 m
Maximum range, target reflectivity > 10% (2)	80 m
Minimum range	0.5 m
Accuracy (3)	10 mm
Precision (3)	5 mm
Field of view	360° x 40.3°
Scan rate	2 × up to 1,920,000 points/sec for each laser head
Scan speed (selectable)	2 × 20 scans/sec (32 channel scanners)

Physical	
Dimensions of instrument	70 cm × 51 cm × 42 cm 27.55" × 20.08" × 16.53"
Weight of instrument	20.0 kg
Weight of battery	Up to 20 kg (depending on cells type)
Dimensions of optional roof rack extension	72 cm × 31 cm × 12 cm 28.34" × 12.2" × 4.72"
Weight of optional roof rack extension	16.6 kg

Imaging system	
Camera type	360° Spherical camera, additional adjustable external cameras as option
Number of cameras	6 sensors
CCD size	2048 x 2448, 3.45 µm pixel size
Lens	4.4 mm
Resolution	30 MP (5 MP x 6 sensors), 10 FPS JPEG compressed
Coverage	90% of full sphere
High Dynamic Range (HDR)	Cycle 4 gain and exposure presets

Positioning and orientation system	
GNSS system	Multiple GPS, GLONASS, Galileo, BeiDou, SBAS and QZSS constellation, L-Band, single and dual antenna support
IMU update rate	Standard: 200 Hz (User selectable up to 600 Hz)
Gyro bias in-run stability	0.25 deg/hr, 1σ
Gyro bias repeatability	7 deg/hr, 1σ
Angle Random Walk	0.04 deg/√hr
Gyro range	± 200 deg/sec
Accelerometer VRW	0.03 m/s/√hr
Accelerometer range	± 20 g
Accelerometer bias	1.7 mg, 1σ
Position accuracy NO GNSS outage	0.010 m HRMS, 0.020 m VRMS 0.005 deg RMS pitch/roll and 0.010 deg RMS heading
Wheel sensor (DMI)	Yes, optional

Environmental	
Operating temperature	-20 °C to +50 °C
Storage temperature	-20 °C to +60 °C
IP rating	IP64
Humidity (operating)	80%, non-condensing
Maximum vehicle speed for data acquisition	110 km/h (68 mph)

Electrical	
Battery type	External battery in protected case, also support direct vehicle power source
Input voltage	24 V DC
Power consumption	Typ. 240 W
Operating time	Up to 8 hrs

*All specifications are subject to change without notice.

(1) Rounded values, selectable by measurement program. (2) Typical values for average conditions. (3) Accuracy is the degree of conformity of a measured quantity to its actual (true) value. (4) Precision is the degree to which further measurements show the same results.

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