

YellowScan Mapper+

Advanced performance fitted
into a compact survey solution

The YellowScan Mapper+ integrates Livox AVIA laser scanner together with high performance GNSS-aided inertial navigation system into a lightweight, standalone and easy-to-use lidar system.

Proven capabilities and stable results over a wide range of applications.



Technologies inside

applanix **LIVOX**



Key differentiators

- ▶ High point density
- ▶ Lightweight
- ▶ 100 m typ. flying height



Integrations

- ▶ Multicopter drones
- ▶ Helicopter drones
- ▶ Fixed-wings

Package includes.

✓ Hardware:

- ▶ YellowScan Mapper +
- ▶ Quick release adapter (DJI skyport or Gremsy)
- ▶ Charger and 2 batteries
- ▶ GNSS antenna and cable
- ▶ 2 USB flash drives
- ▶ Rugged backpack



✓ Services:

- ▶ 1-year unlimited technical support
- ▶ 1-year warranty
- ▶ In-person or online training
- ▶ Camera & boresight calibration

✓ Software:

- ▶ Applanix POSPac UAV, to process GNSS and inertial data for highest accuracy
- ▶ YellowScan CloudStation to generate, visualize, adjust strips, classify, colorize and export your georeferenced point cloud

Optional camera module.

Product presentation:

- ▶ The camera is a Sony APS-C size Exmor™ CMOS image sensor with a BIONZ X™ processor to produce high-precision 20 MP images.
- ▶ The camera module is compatible with the SONY E-Mount and comes with a lens allowing an FOV of 83°.

Built-in camera module:

- ▶ Collect LiDAR and RGB data in a single flight
- ▶ Data are georeferenced automatically
- ▶ No need of pre-flight calibration
- ▶ The operation will be as simple as our LiDAR operation: «Just press the Yellow button»



Technical specifications.

▶ Mapper+ LiDAR system

Scanner	Livox AVIA	GNSS-Inertial solution	Applanix APX-15 UAV
Wavelength	905 nm	Size	L 15 x W 10.4 x H 12.8 cm
Precision ⁽¹⁾	2.5 cm	Autonomy	1 hour typ.
Accuracy ⁽²⁾	3.0 cm	Power consumption	35 W
Shots per second	240 k	Weight	1.1 kg battery excl. 1.3 kg battery incl.
Echoes per shot	Up to 3	Operating temperature	-20 to +40 °C
Scanner field of view	70.4°		

(1) Precision, also called reproducibility or repeatability, accounts for the variation in successive measurements taken on the same target. Here precision value is obtained by averaging the precision from 3 flight levels @60, 90 and 120mAGL. At each flight level, the precision is considered as the mean value of absolute elevation differences between 2 flight lines recorded in opposite directions over a nadir-located 40m² hard surface area.

(2) Accuracy is the degree of conformity of a measured position to its actual (true) value. Here accuracy value is obtained by averaging the accuracy from 3 flight levels @ 60, 90 and 120mAGL. At each flight level, the accuracy is considered as the RMSE value of the elevation differences between targets and the point cloud extracted from 2 flight lines recorded in opposite directions. Validation targets are located within a 40m wide corridor centered along the flight line axis.

▶ Camera Module

Sensor	APS-C Type Exmor CMOS	Depth	82 mm
Resolution	19.8 Mpx	Weight	305 gr (with camera lens)
Lens	Sony E 16mm F2.8	Power	Powered by Mapper
Width	78 mm	Power consumption	2.2 W
Height	73 mm		

Add-ons.

⊕ Optional software:

- ▶ YellowScan LiveStation
- ▶ Colorization module: export colorized point clouds from LiDAR + camera acquisition
- ▶ Strip Adjustment module: a point cloud enhancing toolbox for the CloudStation software
- ▶ Terrain module: export classified point clouds from the CloudStation software

⊕ Optional hardware:

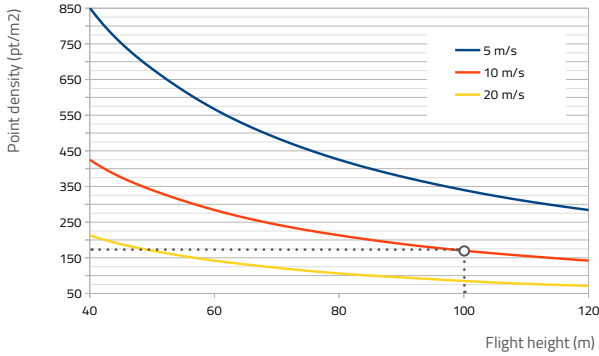
- ▶ Stand-alone mounting bracket for DJI M600/300
- ▶ Stand-alone mounting bracket for DJI M210
- ▶ DJI skyport or Gremsy quick release adapters

⊕ Optional services:

- ▶ Warranty and technical support extensions

Typical mission parameters.

Mapper+ LiDAR system



FLIGHT SPEED	ALTITUDE	POINT DENSITY
5m/s	100m	340pts/sqm

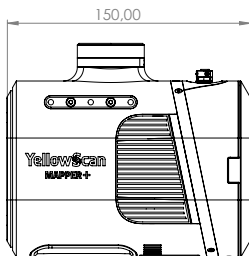
FLIGHT SPEED	ALTITUDE	POINT DENSITY
10m/s	100m	170pts/sqm

FLIGHT SPEED	ALTITUDE	POINT DENSITY
20m/s	100m	90pts/sqm

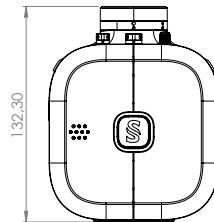
Dimensional drawings.

i All dimensions are in millimeters

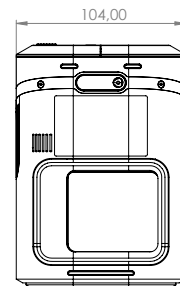
Mapper+ side view



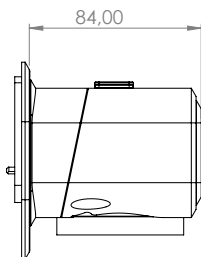
Mapper+ front view



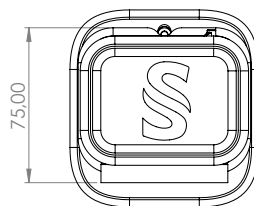
Mapper+ bottom view



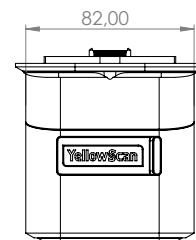
Camera module side view

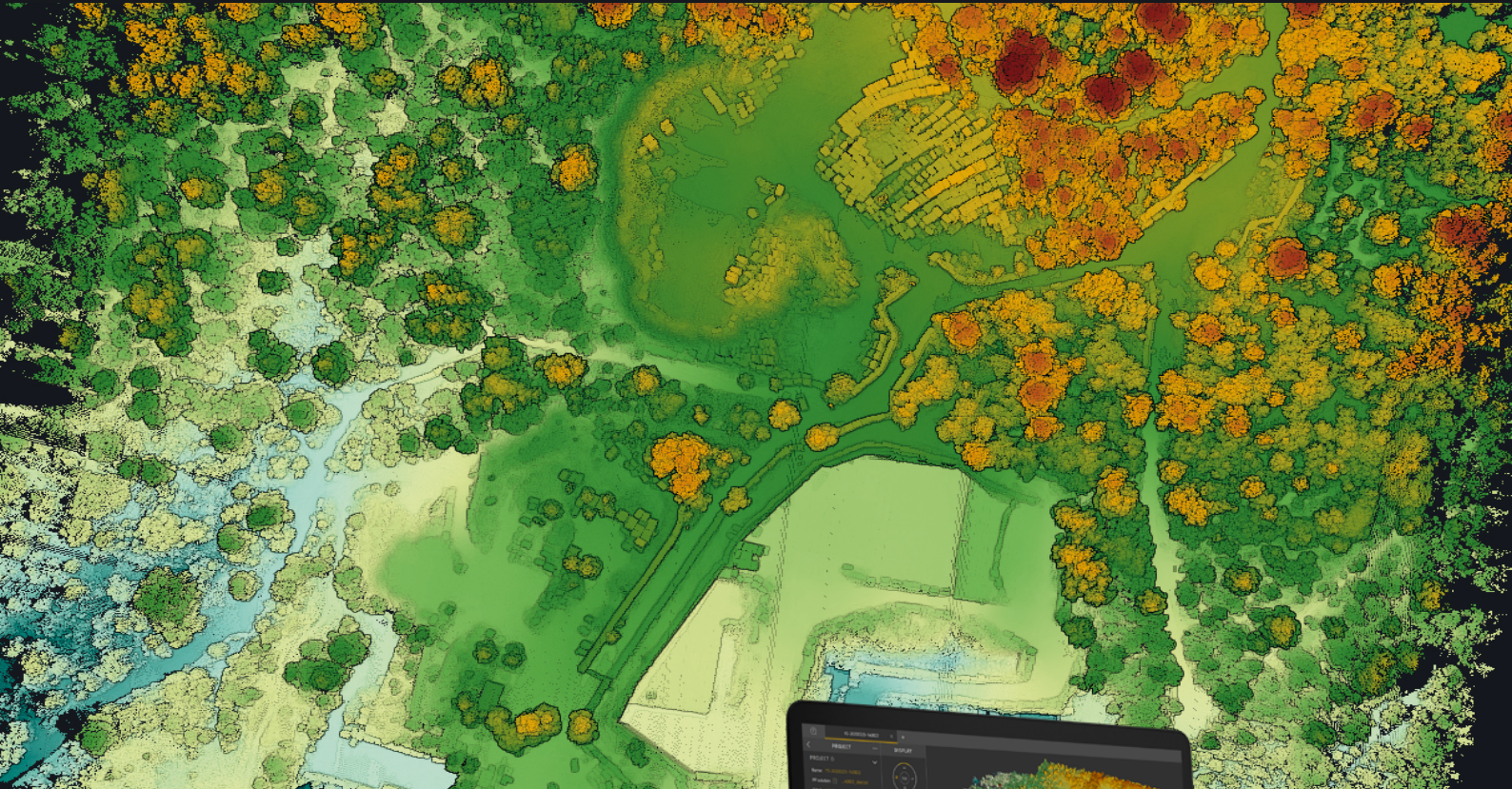


Camera module front view



Camera module top view





YellowScan CloudStation.

All-integrated software to handle your point-clouds

CloudStation is the proprietary software developed by YellowScan to generate and visualize point-clouds.

It comes as an all-integrated solution to allow a better and simplified experience for the customer.



Main features

- ▶ User-friendly graphical interface
- ▶ Automatic or custom strip selection
- ▶ Process and export in .LAS / .LAZ format
- ▶ Advanced visualization tools
- ▶ Project settings: Coordinate System, LiDAR profile, angle range...

YellowScan CloudStation.

YellowScan CloudStation provides a complete software solution to create and manipulate point-cloud data. It allows to extract, process and display data immediately after flight acquisition.

The auto-generation of strips and the production of LAS files are now done in only few clicks.

To allow for remote work in the field, customers have the option to test out the license for up to 30 days.

The software is provided with support, maintenance and updates at no additional costs during the first year after purchase.

General Characteristics.



CloudStation Core:

TECHNICAL SPECIFICATIONS

- ▶ Operating on Windows 10
- ▶ Automatic updates
- ▶ Offline license mode
- ▶ Optional extra license seats

DISPLAY OPTIONS

- ▶ EDL filter
- ▶ Measurement tools
- ▶ Custom image export
- ▶ Cloud color: Elevation, Intensity, Echo...



Optional modules:

STRIP ADJUSTMENT MODULE

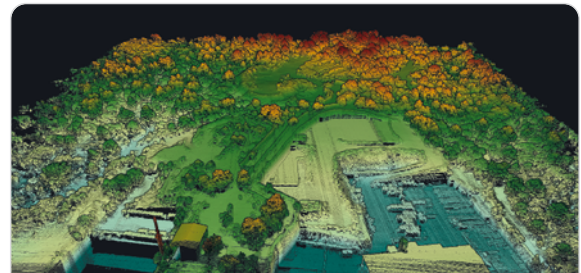
- ▶ Seamless adjustment of strips
- ▶ State of the art algorithms used in the offered adjustment methods
- ▶ Takes advantage of Ground Control Points (GCPs) for final adjustments
- ▶ One-click adjustment

TERRAIN MODULE

- ▶ Automatic classification of points as «ground/non-ground»
- ▶ Export classified LAS
- ▶ Export Digital Model from your classified point cloud as geolocalized TIFF
- ▶ Generate hillshade of your DTM

COLORIZATION MODULE

- ▶ Export colorized point clouds from simultaneous LiDAR + camera acquisition
- ▶ Colorize and visualize your strips in only few clicks
- ▶ Automatic LiDAR - camera calibration refinement



YellowScan Vx20-100 point cloud