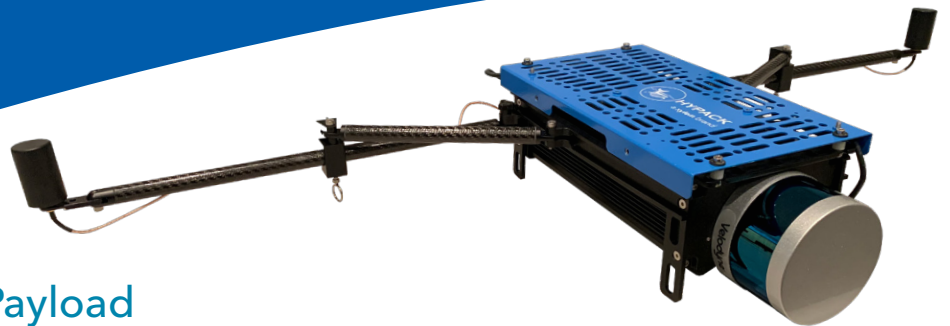


# HYPACK® LiDAR Payload

PORTABLE LIDAR SOLUTION FOR TOPOGRAPHIC, AERIAL, AND MARINE SURVEYING



## About HYPACK® LiDAR Payload

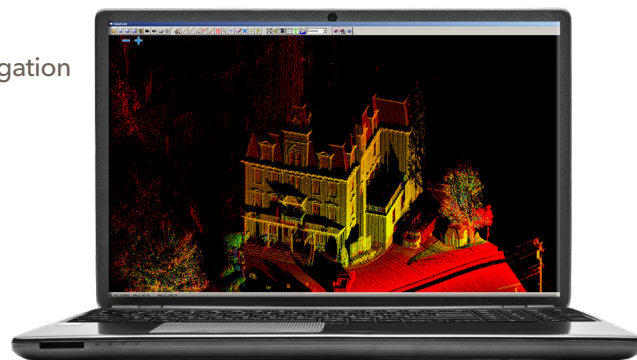
The HYPACK LiDAR Payload is a complete, portable topographic LiDAR surveying solution with HYPACK for data collection and processing. Our Payload is platform agnostic and robust; with an IP67 rated enclosure, the Payload is suited for use on marine vessels or in any surveying environment. We tightly integrate LiDAR and GNSS sensors through our HYPACK software, providing accurate data easily and quickly. Our budget-friendly, end-to-end solution fulfills your LiDAR surveying needs from survey planning to data post-processing.

## KEY CAPABILITIES

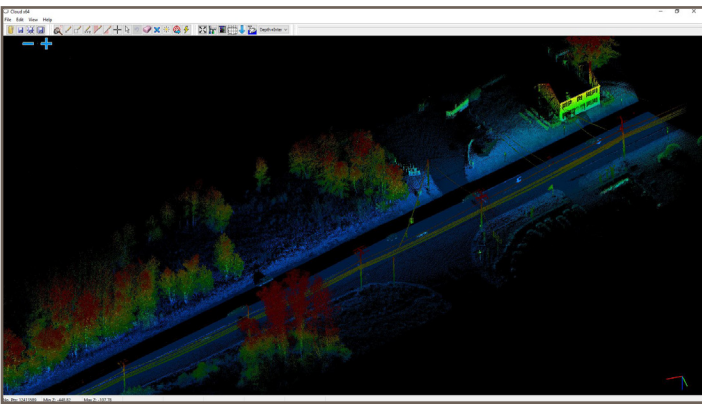
- Fully contained LiDAR data collection unit with GNSS aided inertial navigation
- Fixed offsets allow for tight calibration of sensors
- Can be mounted on any vehicle platform including UAV's
- Total weight: 10 lb
- Real-time image and point cloud viewing

## WHAT THE PAYLOAD INCLUDES

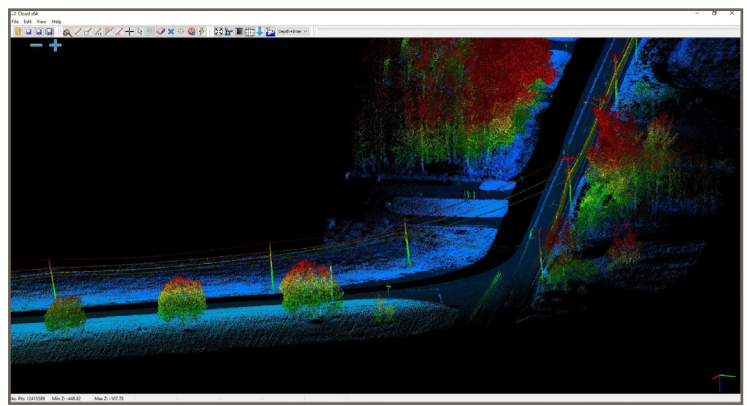
- HYPACK® / HYSWEEP® software license
- Velodyne VLP-16 LiDAR unit
- SBG Ellipse-D Dual Antenna compact inertial navigation system with integrated Dual-antenna survey-grade RTK GNSS receiver
- Onboard rechargeable power supply with 3 hours run time
- Computer running WINDOWS 10



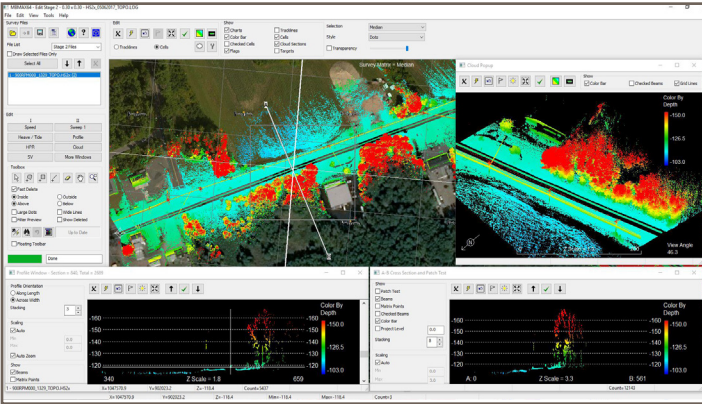
**HYPACK**  
a xylem brand



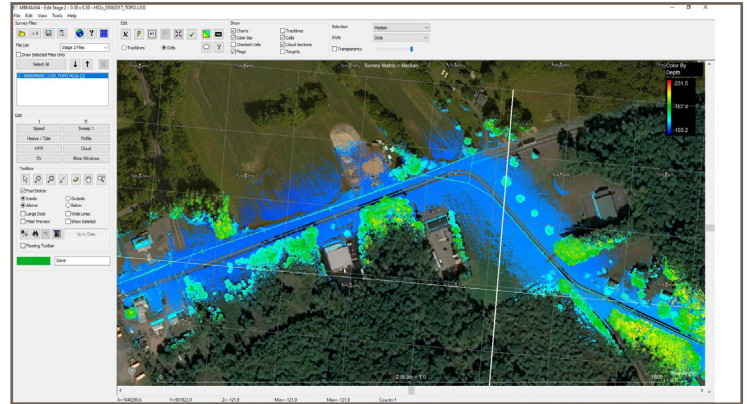
Topographic LiDAR Data Collected With the Payload Mounted on a Land Vehicle



Topographic LiDAR Data Collected With the Payload Mounted on a Land Vehicle



Processing LiDAR Data in MBMAX64: Map, Profile and Cloud Displays



MBMAX64: LiDAR Point Cloud Overlaid on GeotIFF

## HYPACK® LiDAR Payload Specifications

### Total System Uncertainty (Accuracy)

- Using 4 channels ( $\pm 3^\circ$ )
    - High & Moderate Reflective Surfaces  $X, Y = \pm 3 \text{ cm}$ ,  $Z = \pm 5 \text{ cm}$  @ 40 m.
    - Low or Poorly Reflective Surfaces  $X, Y = \pm 5 \text{ cm}$ ,  $Z = \pm 9 \text{ cm}$  @ 40 m
    - Accuracy Compliance USGS LiDAR Base Specification Version 1.2, November 2014 Meets Quality Level: QL1 (data filtered to  $90^\circ$  swath width)
- NOTE: Using more channels increases uncertainty.

### PC: Pico 500

- 6th gen Intel® Core™ i7/i5/i3 & Celeron® processors (Skylake)
- 16 GB memory
- Supports USB, Ethernet, and HDMI connections

### LiDAR: Velodyne VLP Puck Lite

- 16 channel dual return LiDAR unit
- Range: 100 meters
- Weight: 590 grams

### GNSS/ Inertial Navigation System: SBG Ellipse 2-D

- Roll / Pitch  $0.1^\circ$
- Heading  $0.2^\circ$
- Velocity  $0.03 \text{ m/s}$
- Position
  - Single point L1/L2: 1.2m
  - SBAS: 0.6m
  - DGPS: 0.4m
  - GLONASS (Optional)
  - RTK: 2 cm - 3 cm via NTRIP or Radio
  - PPK: Using QInertia
  - Autonomous, RTK via NTRIP or Radio

