

PRELIMINARY
SPECIFICATIONS SUBJECT TO CHANGE

STENCIL PRO

POWERED BY KAARTA ENGINE

KAARTA®

SALES • SERVICE • SUPPORT
Steve Lieber & Associates, Inc.
SLA, Inc.
(281) 332-4656
www.SLAinc.com




Pro-grade mobile laser scanner delivers impressive dimensional & visual fidelity

360°COLOR • RUGGED • GEO-ENABLED • HIGH DENSITY • VERSATILE

Kaarta Stencil® Pro is the innovative mobile mapping platform that goes anywhere – in just about any environment – giving you rapid, accurate and visually stunning reality capture. An all-in-one system to scan, process and view captured data in real time, Stencil Pro offers integrated GNSS, panoramic 4K imagery and colorized point clouds in an IP65-rated professional form factor. With robust surround-view perception in a wide range of light conditions, Stencil Pro is optimized for both indoor and outdoor performance. Featuring an impressive 32-line high-density, low-noise lidar with a range of 120m and a data rate of 600,000 points per second, Stencil Pro produces a highly accurate 3D model in minutes. New advancements are backed by proven Kaarta technology, quality, and accuracy.

An IP65-rating makes Stencil Pro a workhorse in infrastructure mapping, mining, forestry, earthworks, construction and other harsh environments. Stencil Pro's rugged and versatile design is adaptable to many environments, capturing data amidst poor weather, dusty work environments, and below-ground cavities.

The combination of high-resolution 3D perception and a broad vertical field of view enables Stencil Pro to accurately detect ground-level surfaces as well as overhead elements, mapping detail such as curbs, manholes, signs, and poles. The durable configuration makes Stencil Pro ideal for vehicle mounted applications, resulting in extremely fast surveys for large-scale projects.

An added benefit of Stencil Pro is its acquisition of high resolution 360° imagery with four 8-megapixel color cameras, enhancing an already comprehensive 3D model by creating a visual record of current project conditions, as-built environments, and corridor mapping projects. The integration of 3D and high-quality imagery data can improve or speed up the object identification process utilized by geospatial or machine-based learning applications and real-time change detection when compared to point cloud data alone.

Stencil Pro incorporates leading-edge components like a Velodyne VLP-32MR lidar, four >90° RGB cameras (full stitched panorama) and a 6 DoF IMU. Stencil Pro uses simultaneous mapping and localization in GNSS-denied environments, but also has an integrated Trimble GNSS receiver to achieve best-in-class, low-drift accuracy while mapping over longer ranges. GNSS data is collected and used in loop closure to align and geo-register, further enhancing the fidelity of large area scans and long, linear scan paths.

Stencil Pro's intuitive user interface makes data capture and processing simple. The user experience includes one-button scanning, real-time scan monitoring and streamlined post-processing options for maximizing data clarity and usability. Remote operation with a touchscreen monitor allows for mounting Stencil Pro on a multitude of transports. When hand-carrying, scan status can also be started and stopped with a push of a button on the device.

With Stencil Pro's high density, multi-sensor capture comes sizeable outputs. Stencil Pro was developed with transferability in mind. Multiple ports support large data transfers, including a high-speed ethernet adapter. Stencil Pro is also WiFi enabled for built-in connectivity and cloud readiness.

Stencil Pro is a turnkey system advancing next generation mobile surveying.

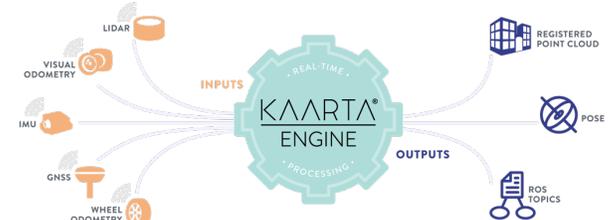
STENCIL PRO SPECIFICATIONS

OUTPUT	.ply, .las
MODES	Baseline mapping GNSS scan alignment
IMU	Internal MEMS-based IMU Six DoF: X, Y, Z, Roll, Pitch, Yaw
PROCESSOR	Intel NUC i7 Octa Core
PORTS	1 HDMI 2 USB-A 1 USB-C
STORAGE	1TB SSD
DISPLAY	Portable HDMI touchscreen monitor
OS	Ubuntu Linux OS
LIDAR	Velodyne VLP-32MR lidar 1m [min] – 120m [max] range 360° horizontal FOV 40° (-25° to +15°) vertical FOV Class 1 Eye-safe per IEC 60825-1:2014
GNSS	Integrated Trimble BD-990 receiver, AV28 antenna + PPK 1 pulse-per-second (1PPS) output 336 tracking channels Supports a range of GNSS antennas, NTRIP
CAMERAS	1 High-frame rate B/W Camera for visual odometry (4 MP) 4 Panoramic high-resolution 4K color cameras (8 MP), each camera with >90° HFOV and 55° VFOV provide full stitched 360° panorama
ACCURACY	30mm (lidar)
SPEED	600,000 points/sec [data acquisition] 10 Hz [scanning speed]
WEIGHT	Scanner: 3.4kg (7.5lbs) Controller: 3kg (6.7lbs) 98Wh battery: 0.7kg (1.6lbs)/each
OPERATING TEMPERATURE	-10°C min– 45°C max [scanner]
HUMIDITY	<96%
SPRAY/DUST/WATER	IP65
POWER	Input 100-240 VAC
BATTERY LIFE	2 hours per battery, hot swappable
PLATFORMS	Hand carry, roadway vehicle, ROV, robot, ATV, rail
INCLUDED ACCESSORIES	Wireless keyboard and mouse AC power adaptor Extendable monopod Umbilical cables Portable HDMI monitor and cables 2 V-Mount batteries with charger (USA only) Control pack carry bag Rugged backpack [2] carrying case Tactical bag for all accessories
OPTIONAL ACCESSORIES	Vehicle Mounting Kit
WARRANTY	1 year
SAFETY	Complies with FCC Part 15, Subpart B Class B Radiated and Conducted Emissions
MODEL NUMBERS	KRT-STN-PR-32-000: Stencil Pro + Base Accessory Kit KRT-STN-SW-00-010: 1 yr software service KRT-STN-HW-01-010: 1 yr extended hardware warranty KRT-STN-HW-02-010: 2 yr extended hardware warranty KRT-ACC-VH-01-010: Stencil Pro Vehicle Mounting Kit

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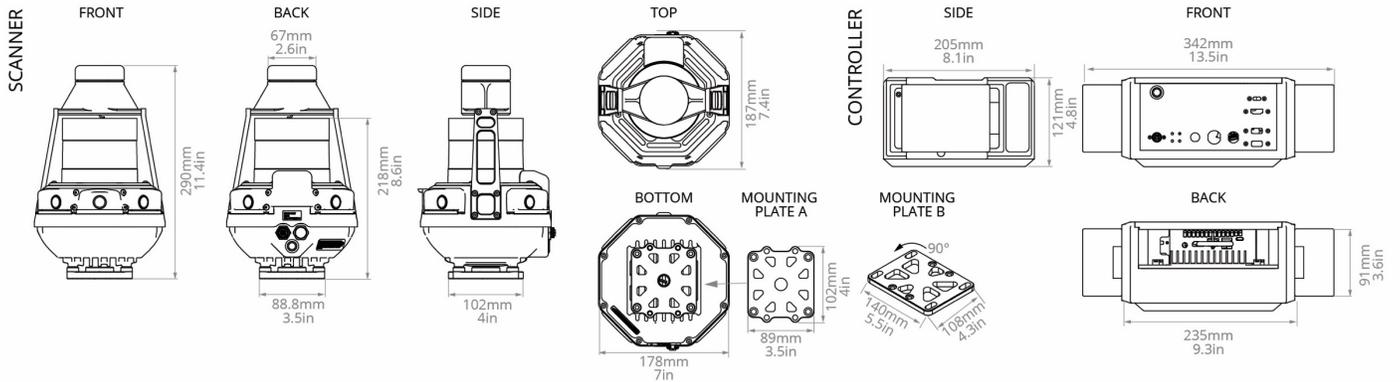
- Patent-pending real-time registered point cloud generation
- Multi-sensor input (lidar, IMU, feature tracker, camera, GNSS)
- Continuously self-correcting minimal drift techniques
- Implicit loop closure
- Fast, explicit loop closure at point of scan



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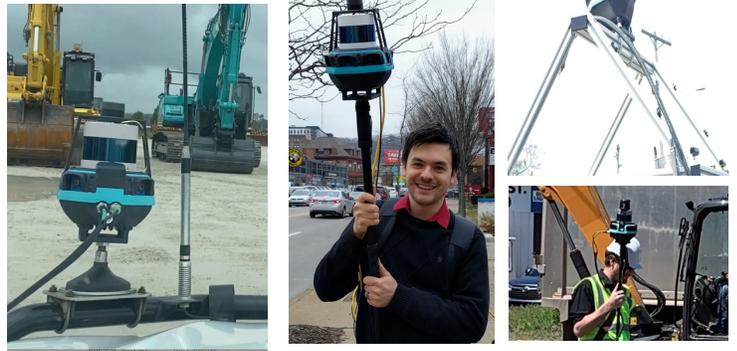
DIMENSIONS



PANORAMIC IMAGERY



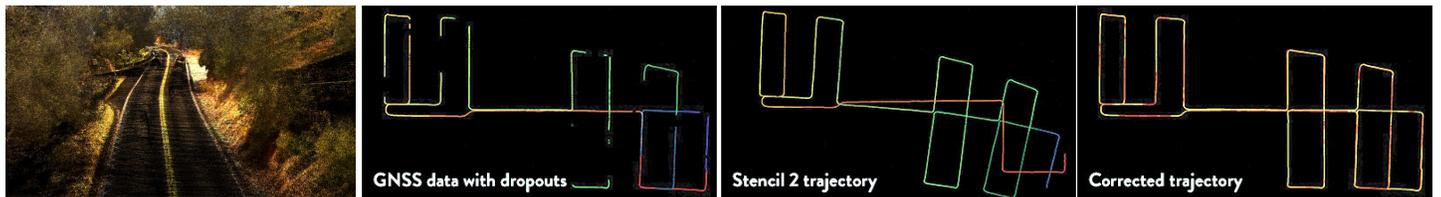
PLATFORM & APPLICATION VERSATILITY



SAMPLE OUTPUT



GNSS INTEGRATION



GNSS in loop closure: GNSS data showing dropouts over the course of the data collection [left], trajectory data from Stencil 2 with some drift [center], and corrected trajectory in yellow overlaid on the original GNSS data [right]

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