CONTOUR

POWERED BY KAARTA ENGINE

KAARTA®

Integrated, real-time 3D mobile mapping system

Kaarta Contour™ enables 3D modeling from input to output in real time, condensing the workflow process by eliminating time and cost, and allowing decision-making at the point of work.

Lightweight and battery powered, Contour is hand carried through an environment as it scans to generate a 3D map without additional infrastructure. A typical 10,000 sq m (110,000 sq ft) space can be scanned in about 2.5 hours.

The onboard touchscreen enhances Contour's ease and usability. The screen displays the model as it's being built in real time, allowing the user to improve results during mapping and even control the display to provide immediate knowledge of the environment. Users are able to pause, rewind, and resume during scanning.

Kaarta Engine, Kaarta's patent-pending advanced 3D mapping and localization algorithms, is at the heart of Contour, providing highly accurate and robust maps.

Kaarta Reality Layer integrated post-processing enables one-click cleanup and colorization of Contour datasets, running the gamut from point cloud to surface mesh to RGB point cloud to rich photorealistic model. These colorization capabilities make it possible to quickly capture and process just the level of color detail needed for a wide range of applications. At its most immersive and photorealistic level of detail, Reality Layer automatically connects the dots on a dimensionally-accurate, high-fidelity point cloud to create faithful surface models for the seamless overlay of high resolution color imagery – all rapidly captured and processed with one mobile handheld device. Reality Layer reveals features such as surface textures and colors, locations of electrical, plumbing, HVAC and other features, or even details as fine as the text on signage or labeling.

Confidence Metrics provide immediate feedback on the quality of scans by signaling whether new scan data is registered properly in the existing map, estimating the likelihood of errors and allowing the user to increase the level of confidence by adjusting data collection techniques or adjusting parameters. Contour automatically discards data that is likely to be inaccurately registered to the model, which helps prevent the need for rescanning or post-processing to fix errors in registration.

Automated Floor Leveling/Sectioning algorithms identify floor structures and smart-scan leveling for better scans and reduced post-processing time. Floor Planner automatically levels, rotates, and generates 2D images of a "slice" from a point cloud.

Contour is a turnkey system that contains everything needed to capture and process the captured data. No internet connection, additional computers, software licenses, or subscription needed. Contour serves as a stand-alone scanning solution but can also be used to complement or augment other scanners.

Contour is ideal for scanning as-built multi-room interiors, multi-floor plans, buildings, industrial plants and infrastructure and more for both planning and maintenance purposes.

CONTOUR SPECIFICATIONS

OUTPUT	.ply or .las
MODES	Baseline mapping Transition mapping Pause, rewind, resume during scanning Merge maps for large and complex areas Add on mapping compatible with .ply files from Kaarta Stencil® or other device
IMU	Internal MEMS-based IMU Six DOF: X, Y, Z, Roll, Pitch, Yaw
PROCESSOR	Intel i7 dual core
PORT	1 USB 3.0
STORAGE	500 GB SSD
OS	Ubuntu Linux OS
LIDAR	0.1m [min] – 30m [max] range 190° horizontal FOV 190° vertical FOV Accurate to ± 3cm
ACCURACY	±30mm ±10mm post-processed for typical room environments
SPEED	35,000 points/second ~5km/hr (3.1mph) typical walking speed ~ 2.5 hrs to scan 10k sq m (110,000 sq ft)
CAMERA	Onboard HD color camera
ADD'L SENSOR	Feature tracking B/W camera
SCREEN	18cm (7") touchscreen
WEIGHT	2.78 kg (6.13 lb)
OP TEMP	0°C [min] – 50°C [max]
HUMIDITY	<85%
POWER	Input 12-24 VDC
BATTERY TYPE	Internal LiPo
BATTERY LIFE	2 hours, extended through external batteries
MOUNTING	Hand-held
INCLUDED ACCESSORIES	USB wireless keyboard and mouse 4-port USB hub for downloading data AC power adaptor Neck strap Pelican case
WARRANTY	1 year
SAFETY	Laser safety classification 1
MODEL NUMBERS	KRT-CNT-XX-00-010: Contour KRT-CNT-SW-00-010: 1 yr software service KRT-CNT-HW-01-010: 1 yr extended hardware warranty KRT-CNT-HW-02-010: 2 yr extended hardware warranty

KAARTA ENGINE

Real-time registered point cloud generation
Real-time localization
Multi-sensor input (lidar, IMU, feature tracker)
Continuously self-correcting minimal drift techniques
Implicit loop closure
Fast, explicit loop closure at point of scan
Point-of-scan work confirmation
Point cloud sharpening technology
Patent-pending technology
1st place Microsoft Indoor Localization Competition 2016 & 2017
1st & 2nd ranking KITTI Vision Benchmark Suite

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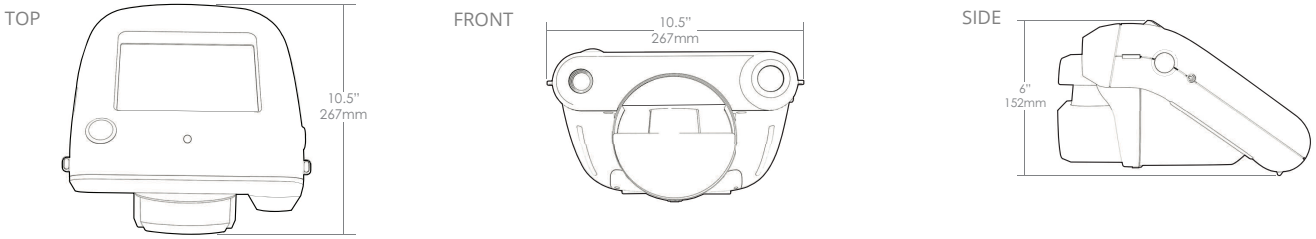
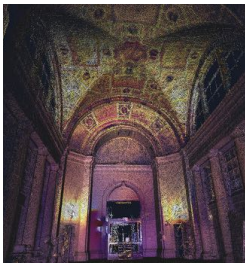
DIMENSIONS



SAMPLE OUTPUT

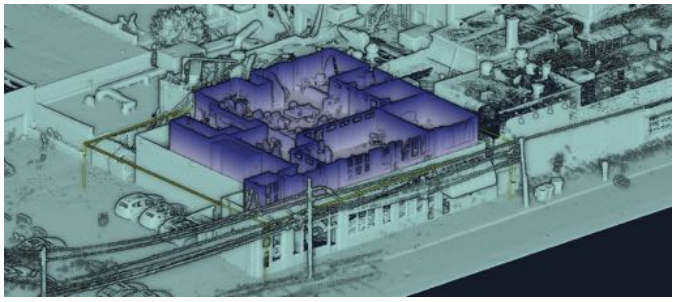
Construction site scan showing actual photo, point cloud, colorized point cloud and Reality Layer photorealistic model

Two different stairwell examples. Traditionally, stairs are difficult to map since they are narrow and confining with a turn at every landing.



Color point cloud of detailed ceiling & archway

Color point cloud of commercial office space – note detail of wall colors and flooring



Two separate scans of a commercial office building seamlessly merged together – interior (represented in purple) scanned in 20 minutes with Contour, exterior scanned with Stencil in under 30 minutes

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