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, offering a significant speed advantage over terrestrial laser scanners along with the flexibility to capture tight and complex spaces and full coverage of a space. Kaarta's advances in localization and real-time and on-board processing rapidly and accurately turn the captured data into information that can be used to speed the modeling workflow.

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

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

Contour's onboard touchscreen enhances ease and usability. The screen displays the model as it's being built to provide immediate knowledge of the environment. The ability to pause while scanning or set key poses and resume from those poses gives the user maximum control during the capture process, especially useful when there is limited time or access to a site.

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. Confidence levels can be set in rough to high definition modes (and can be changed on the fly) to adapt to the desired speed and conditions of capture and the required output. New features including HD Mode and Point Density View help the user ensure the fidelity of the data for the most efficient and accurate BIM modeling outcome.

Contour isn't just a capture device; it is also a computer. On-board High Density and Reality Layer post-processing enables fast, one-click queuing for cleanup and colorization of datasets, generating dimensionally-accurate RGB point clouds and photorealistic models using overlays of high-resolution color imagery.

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 data right on the device. Data can remain private within a user's secure environment with no requirement to process via a Cloud-based service and no additional license fees or subscriptions needed. Contour serves as a stand-alone 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, 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 (lidar) ±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

Microsoft INDOOR LOCALIZATION COMPETITION IPIN 2016

KIT Karlsruhe Institute of Technology

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

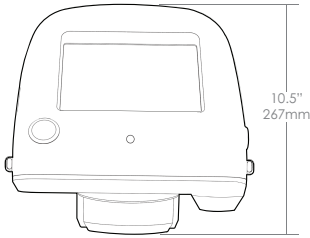1st place Microsoft Indoor Localization Competition 2016 & 2017

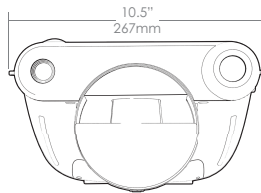1st & 2nd ranking KITTI Vision Benchmark Suite

CONTOUR
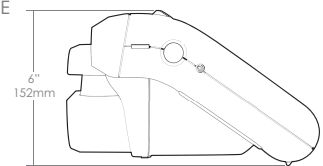
POWERED BY KAARTA ENGINE

DIMENSIONS

TOP

10.5"
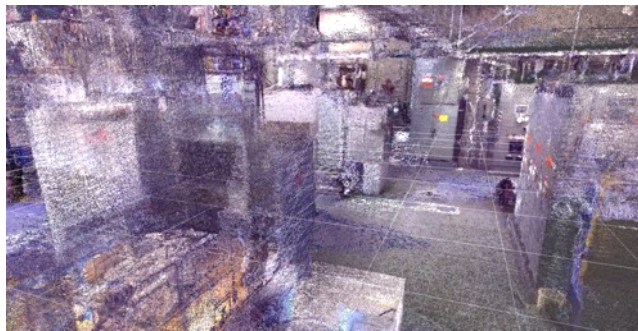267mm

FRONT

10.5"
267mm

SIDE
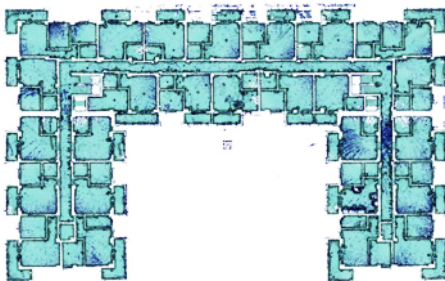
6"
152mm

SAMPLE OUTPUT

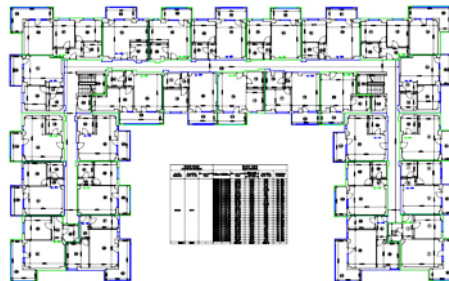
Confucian temple color point cloud

Power station color point cloud

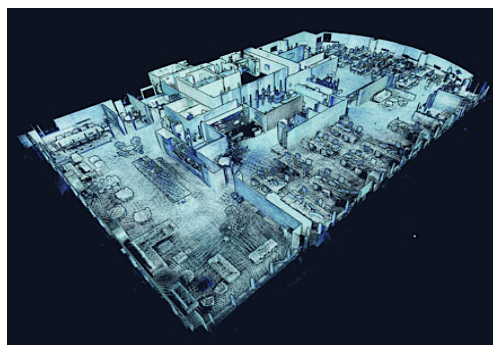*Scan narrow and confining stairwells with ease*

As-built plans for condominium project: Point cloud (left) captured by one person in about two hours. Floor plans (right) created with PointCab.

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

Reality Layer of stone arch in historic Belvoir

Scan to BIM for office project: Point cloud (left) captured by one person in 40 minutes. 3D BIM model created in Revit.