Mobile Mapping Solutions

Up to 50% cheaper than traditional methods

3D laser mapping

IGI®

Mobile Mapping Solutions are designed to document the real world in 3D. The systems map everything: railway tracks with power lines, coastlines, roads with traffic signs, signposts and road side objects. The surveyed geo-referenced point cloud is the starting point for the analysis. The existing situation can now be examined in an exact geometric way as the basis for a new situation. Government agencies or engineering firms use the 3D model to design new elements. The specification quantities are calculated precisely in the surveyed Digital Surface Model.

IGI and 3D Laser Mapping offer four different solutions based on one precise navigation solution.

STREETMAPPER®

The world's most accurate mobile laser mapping system with 360-degree vision

StreetMapper is a dynamic 3D mapping system that uses the very latest laser scanning technology from Riegl. The range of laser scanners combines new, high performance sensors with internal waveform processing to record unlimited returns per laser pulse and complete digital processing. With an unmatched measurement range the *StreetMapper* delivers proven accuracies to within 10mm for most challenging environments.

Mobile Mapping System for:

Rapid mapping of highways, railway tracks, infrastructure, buildings, tunnels and vegetation

ZMAPPER®

Precise, fast and robust: the *Z-Mapper*, based on the Z+F Profiler 9012

Featuring a high-speed, phase-based laser scanner with great precision and a 360° field of view. With its scan rate of more than 1 million points per second and maximum scan speed of 200 profiles/sec, very short distances between profiles can be achieved.

Mobile Mapping System for:

Rapid mapping of highways, railway tracks, infrastructure, buildings and tunnels

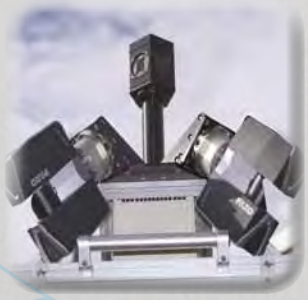
VMAPPER®

Small built with an unrivaled field of view, *V-Mapper* based on the Velodyne HDL-32E

With an innovative laser array utilizing 32 lasers aligned from +10° to -30° to provide less shadows together with a 360° horizontal field of view.

Mobile Mapping System for:

Rapid mapping of highways, railway tracks, infrastructure, buildings, tunnels and vegetation



SAM

Static And Mobile

Get wheels on your Focus 3D

SAM stands for **S**tatic **A**nd **M**obile LiDAR mapping system. By using one or two Focus3D hight-speed laser scanners combined with a 360° panoramic camera and a precise and affordable GNSS/IMU system, *SAM* brings wheels to your scanners. *SAM* enables you to mount your terrestrial laser scanners on to any vehicle and get ready for mobile mapping.

Mobile Mapping System for:

Rapid mapping of highways, buildings and tunnels as well as terrestrial applications

FEATURES & APPLICATIONS

All our systems can be customized and are available with a *Flexible Lifting Platform*, *Pod Housing* and *Uninterruptible Power Supply*. For world-wide universal applications the solutions are available as *Portable System* and on a hirail vehicle for land and rail applications.

Flexible Lifting Platform


Pod Housing


Portable System


HiRail Installation


Mobile Thermography


Highway Mapping


Railroad Mapping


Tunnel Mapping


Coast Mapping

PERFORMANCE

Laser Scanner

Our solutions provide the integration of various laser scanners from the manufacturers Riegl, Zoller + Fröhlich, Velodyne and Faro. Up to three laser scanners are supported for one system solution. For details please see the comparison chart on the right.

Digital Imaging System

Up to 4 different digital cameras with a resolution variety of 4 to 29 MPixel can be installed. A 360° panoramical camera or up to 2 thermal camera heads are also available. All images are accurately time stamped with GNSS time. This allows the post-processing software to use accurately geo-referenced images.

Precise Navigation

At the heart of all four Mobile Mapping solutions is the precise positioning system *TERRAcontrol* - offering one user interface for all different kind of sensors as laser scanners, still cameras, thermal cameras and video cameras.

Features:

- One system, multiple applications (special forward/backward Kalmann filter algorithms are implemented for airborne, land, water and rail applications)
- GPS & GLONASS support
- *DIA – Direct Inertial Aiding* to assist in areas of poor GPS reception
- *DIA+ - Direct Inertial Aiding Plus* to assist in areas of poor GPS + GLONASS reception
- Survey grade FOG and MEMS based IMU, all export free
- IMU with up to 512 Hz data rate
- Optical odometer for land and rail applications
- Sensor for Zero Velocity Updates (ZUPT)
- Incl. *TERRAoffice* for INS post-processing

New: 512 Hz, for 200 rps laser scanner

PERFORMANCE TERRAcontrol SMU

Performance*	TERRAcontrol-m	TERRAcontrol-I**	TERRAcontrol-II**	TERRAcontrol-III
Position [m]	0.05	0.05	0.05	0.05
Velocity [m/s]	0.005	0.005	0.005	0.005
Roll / Pitch [deg]	0.01	0.008	0.004	0.003
True heading [deg]	0.02	0.015	0.01	0.007
Available data rates	400 Hz	128 Hz or 256 Hz	128 Hz or 256 Hz	400 Hz & 512 Hz

* Post Processing

** Upgrades to AEROcontrol-II or -III possible at any time

SOFTWARE

All relevant parameters during survey are handled through the included on-board touch-screen. All solutions come with licenses for *MMProcess* and *TERRAoffice*.

MMProcess - Mobile Mapping Suite

The *MMProcess* is for managing projects and different system installations. This is especially important for use of different vehicles or scanner positions as well as installations on boats, quads or trains. One main task of the software is the geo-reference to all data sets.

***TERRAoffice* - GNSS/IMU post-processing**

TERRAoffice implements different forward/backward Kalman filter algorithms to achieve optimal results for airborne, land, water and rail applications. For the transformation of surveyed data into a local coordinate system the software features more than 600 local coordinate systems and a *Coordinate System Editor* for customisation. *TERRAoffice* has a special *Lever Arm Tool* for managing and defining the lever arms accurately. With its simplified user interface the package is optimal for all users, even without extensive training and experience.

3rd Party Software

The *MMOffice* and *TERRAoffice* are smoothly integrated and deliver a geo-referenced point cloud as a basis for e.g. control of construction progress (set-actual comparison), clearance analysis, slope checking and 3D city modelling. Available 3rd party software e.g. Bentley MicroStation & Pointools with the Terrasolid Software Suite, Card/1 and Vestra Seven can handle the point cloud for use of GIS, so that the client knows the data of the area and its assets exactly.

SYSTEM PARAMETERS[1]					
Brand	***StreetMapper***	***V-Mapper***	***Z-Mapper***	***SAM - Static And Mobile***	
Based on	Riegl VUX[2]	Velodyne HDL-32E	Z+F Profiler 9012	Faro Focus 3D, Trimble TX5	Faro Focus 3D X 330
Measurement technique	Time-of-Flight	Time-of-Flight	Phase-based	Phase-based	Phase-based
Max. FoV [deg]	355°	360° x +10° to -30° (32 laser/detector pairs)	360°	300° / 360°[3]	300° / 360°
Max. range [m]	400	100	119	50	80
Rotation speed [rps]	250	10	200	97	97
Max. measurement rate [pps]	1,000,000	700,000	1,016,000	976,000	976,000
Number of returns	Unlimited	1	1	1	1
Laser class	Class 1, eye-safe	Class 1, eye-safe	Class 1, eye-safe	Class 3R, practically eye-safe in *SAM* operation	Class 1, eye-safe
Laser weight [kg]	3.6	2	13.5	5 + helical interface	5 + helical interface
SUPPORTED APPLICATIONS					
Rapid Highway Mapping	x	x	x	x	x
Construction Mapping	x	x	x	x	x
Infrastructure Mapping	x	x	x	No sign detection	No sign detection
Buildings and Surfaces	x	x	x	No sign detection	No sign detection
3D City Modelling	x	x	x	x	x
Tunnel Mapping	x	x	x	x	x
Vegetation Mapping	x	x			
Terrestrial Applications[3]	-	-	-	Scanner can be used for terrestrial applications as 3D documentation, accident reconstruction, crime scene analysis, civil engineering,...	Scanner can be used for terrestrial applications as 3D documentation, accident reconstruction, crime scene analysis, civil engineering,...

[1] All data based on one scanner
[2] Complete Riegl laser scanner series is supported
[3] Only when used as terrestrial laser scanner

Ideal Tool for:
Road Authorities,
Provinces,
Municipalities,
Contractors,
Engineering &
Geodetic Survey Firms

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