RIEGL VMZ

RIEGL VZ-400i features

Fully integrated, accurate, and compact mobile 3D Laser Scanning System for combined static and kinematic data acquisition. This system allows for lower mobilization costs with a high return on investment.

Hybrid Mobile Laser Mapping System

for 3D **Static** and **Kinematic** Data Acquisition

Typical Kinematic Applications

• Efficient Data and Image Acquisition • GIS Mapping and Asset Management • City Modeling • Surveying in Open-Pit Mining • Measurement of Bulk Material • Road Surface Scans • Shore Surveying and Marine Applications

Typical Terrestrial Applications

• Civil Engineering • Topography • Monitoring • Facade Modeling • Mining • As-Built Surveying • Architecture • Archeology

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Key Features

- IMU/GNSS unit, fully integrated to support ***RIEGL* VZ-400i** and **VZ-2000i** scanners for mobile (kinematic) data acquisition
- Easy coupling and de-coupling of the VZ scanner from the IMU/GNSS unit
- Quick change from mobile to terrestrial applications, and vice versa, without losing the stability of the system calibration
- Flexible installation options - vertical and horizontal setup
- Frame based roof-mount compatible with standard roof bars
- Image data acquisition with a calibrated and GPS synchronized NIKON® DSLR camera
- Additional panoramic camera systems such as FLIR Ladybug®5+ are available
- Single power supply for the VZ scanner and the IMU/GNSS unit from a standard car battery
- Easy system operation with single laptop running RiACQUIRE (additional camera may need an additional laptop)

Seamless *RIEGL* workflow for MLS data acquisition, processing and adjustment is provided by *RIEGL's* proven software suite.

vertical scanner setup with additional panoramic camera system

NIKON® DSLR camera for mobile and terrestrial applications

horizontal setup for, e.g. road surface scans

Scanning Modes

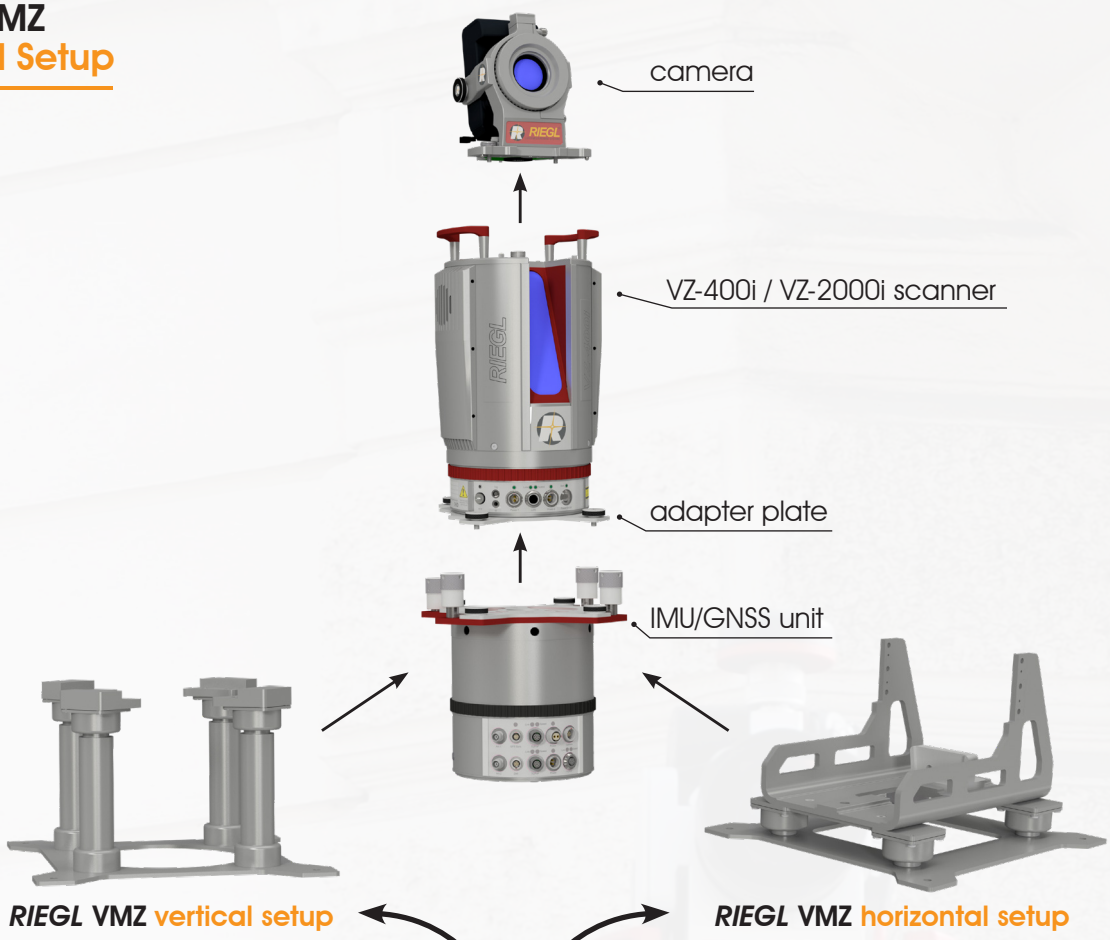
- VMZ 2D line scan mode at user-defined horizontal rotation of the scanning head for efficient side scanning with 100 deg field of view
- VMZ 3D mode with continuous rotation of the scanning head for 360 deg overview scanning
- 360 deg static scanning while vehicle is stationary to acquire high density scans
- Horizontal setup for dedicated road surface scanning with 100 deg field of view

Workflow - How to mobilize your *RIEGL* 3D Terrestrial Laser Scanner

From VZ to VMZ

flexible setup
and easy mounting,
e.g., in vertical position

RIEGL VMZ General Setup



RIEGL VMZ Vertical Setup

RIEGL VMZ Horizontal Setup

Typical Applications

Off-shore Mapping of Coastlines

Measurement of Bulk Material, Surveying in Open-Pit Mining

RIEGL VMZ Technical Data

Scanner Performance [1]	VZ-400i	VZ-2000i
Eye Safety Class [2]	Laser Class 1	Laser Class 1
Max. Range @ Target Reflectivity 90% / 20% [3] [4]	800 m / 400 m	2500 m / 1300 m
Minimum Range	0.5 m	1.0 m
Accuracy [5] [7] / **Precision** [6] [7]	5 mm / 3 mm	5 mm / 3 mm
Max. Effective Measurement Rate	500,000 meas./sec	500,000 meas./sec
Scan Angle Range - Vertical (Line) Scan	total 100°	total 100°
Scan Angle Range - Horizontal (Frame) Scan	max. 360°	max. 360°
Max. Lines per Second (lps)	240 lps	240 lps
Max. Frame Angle per Second	150 deg/sec	150 deg/sec

IMU/GNSS Performance [8]	
Position Accuracy (absolute)	typ. 20 - 50 mm
Roll & Pitch / Heading Accuracy	0.015° / 0.05°

1) The listed scanner performance provides an overview of VZ-400i and VZ-2000i. Further details are provided in the data sheets of VZ-400i and VZ-2000i.
2) Class 1 laser product according to IEC 60825-1:2014
3) Typical values for average conditions. Maximum range is specified for flat targets with size in excess of the laser beam diameter, perpendicular angle of incidence, and for atmospheric visibility of 23 km. In bright sunlight, the max. range is shorter than under an overcast sky.
4) In long range mode (lowest pulse repetition rate).
5) Accuracy is the degree of conformity of a measured quantity to its actual (true) value.
6) Precision, also called reproducibility or repeatability, is the degree to which further measurements show the same result.
7) One sigma @ 100 m range under *RIEGL* test conditions.
8) One sigma values, no GNSS outage, with DMI option, post-processed using base station data.

Further Information

RIEGL VZ-400i Data Sheet

RIEGL VZ-2000i Data Sheet

RiSCAN PRO Data Sheet

RiACQUIRE Data Sheet

RiPROCESS Data Sheet

RiUNITE Data Sheet

RiPRECISION Brochure

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