

NEW RIEGL VMX[®]-2HA



High-Speed 10 GigE Link
for acquisition of
2 million measurements/sec
9x12 Mpx camera images



The RIEGL VMX-2HA is a High Speed, High Performance Dual Scanner Mobile Mapping System which provides dense, accurate, and feature-rich data at highway speeds.

With 2 million measurements and 500 scan lines per second, this turn-key solution is ideally suited for survey-grade mobile mapping applications.

This powerful technology comprises two RIEGL VUX-1HA High Accuracy LiDAR sensors and a high performance INS/GNSS unit, housed in an aerodynamically-shaped protective cover.

A camera interface for up to 9 optional cameras enables complementation of the LiDAR data with precisely geo-referenced images.



NEW High Speed, High Performance Dual Scanner Mobile Mapping System

Typical Applications

- Transportation Infrastructure Mapping
- Rail Mapping
- Road Surface Measurement
- Rapid Capture of Construction Sites and Bulk Material
- City Modeling
- Open-Pit Mine Surveying
- GIS Mapping and Asset Management
- As-Built Surveying





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RIEGL VMX-2HA Technical Data


 max. measurement range

 pulse repetition rate (peak)

 online waveform processing

 optional digital camera(s)

 multiple target capability

 eye safe operation at Laser Class 1

VMX-2HA Scanner Performance

Laser Class	Laser Class 1 (Class 1 Laser Product according to IEC 60825-1:2014)			
Effective Measurement Rate ¹⁾	600 kHz	1 MHz	1.5 MHz	2 MHz
Max. Range, Target Reflectivity $\rho \geq 80\%$ ^{2) 3)}	420 m	330 m	270 m	235 m
Max. Range, Target Reflectivity $\rho \geq 10\%$ ^{2) 3)}	150 m	120 m	100 m	85 m
Max. Number of Targets per Pulse	practically unlimited (details on request)			
Minimum Range	1.2 m			
Accuracy ^{4) 6)} / Precision ^{5) 6)}	5 mm / 3 mm			
Field of View	360° "full circle"			
Scan Speed (selectable)	up to 500 scans/sec			

- 1) Rounded values, selectable by measurement program.
- 2) 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 overcast sky.
- 3) Ambiguity to be resolved by post-processing with RiMTA software.
- 4) Accuracy is the degree of conformity of a measured quantity to its actual (true) value.
- 5) Precision, also called reproducibility or repeatability, is the degree to which further measurements show the same result.
- 6) One sigma @ 30 m range under RIEGL test conditions.

Camera Options ⁷⁾

	max. numbers of cameras	frames per second	Resolution [px (H) x px (V)]	lens focal length [mm]	Field of View (FOV)
5 MP CMOS	9	23.7	2464 x 2056	5	80.7° x 70.7°
9 MP CMOS	9	13.4	4112 x 2176	8	83.1° x 50.3°
12 MP CMOS	9	9.7	4112 x 3008	8	83.1° x 65.9°
FLIR Ladybug®5+	1 unit / 6 lens	approx. 19	6 x 5 Mpx	4.4	90% of full sphere
Nikon® D810	9	1	7360 x 4912	14 / 20	104° x 81° / 83° x 61°

7) The combination of different cameras is possible.

IMU/GNSS Performance ⁸⁾

Position Accuracy (absolute)	typ. 20 - 50 mm
Roll & Pitch Accuracy	0.005°
Heading Accuracy	0.015°

8) One sigma values, no GNSS outage, with DMI option, post-processed using base station data.

Electrical Data

Power Supply Input Voltage	11 - 15 V DC
Power Consumption ⁹⁾	typ. 300 W

9) typical configuration with 4 cameras

Interfaces

Interfaces Measuring Head (VMX-MH)
9 ports for optional cameras and additional devices: trigger pulse, exposure pulse, NMEA data, PPS, LAN, Power 24V
VMX-MC Main Cable (single cable connection between VMX-MH and VMX-CU) with 10 GigE Link



Watch our videos!
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