

2D LASER SCANNER **LMS-Q500**

The **RIEGL LMS-Q500** 2D laser scanner provides accurate non-contact profile measurements based on precise time-of-flight laser range measurements and fast line scanning of the laser beam. The rugged overall system design makes the **LMS-Q500** exceptionally well suited for installation even in very harsh industrial environments.



To allow outdoor operation within a wide temperature range, the LMS-Q500 laser scanner is equipped with a completely sealed internal climate control. The instrument only needs one power supply and provides scan data via the integrated TCP/IP Ethernet interface. The laser scanner LMS-Q500 has two accurate inclination sensors integrated with a tilt range of +/- 30° each allowing an accurate determination of the laser beam footprint on the target surface.

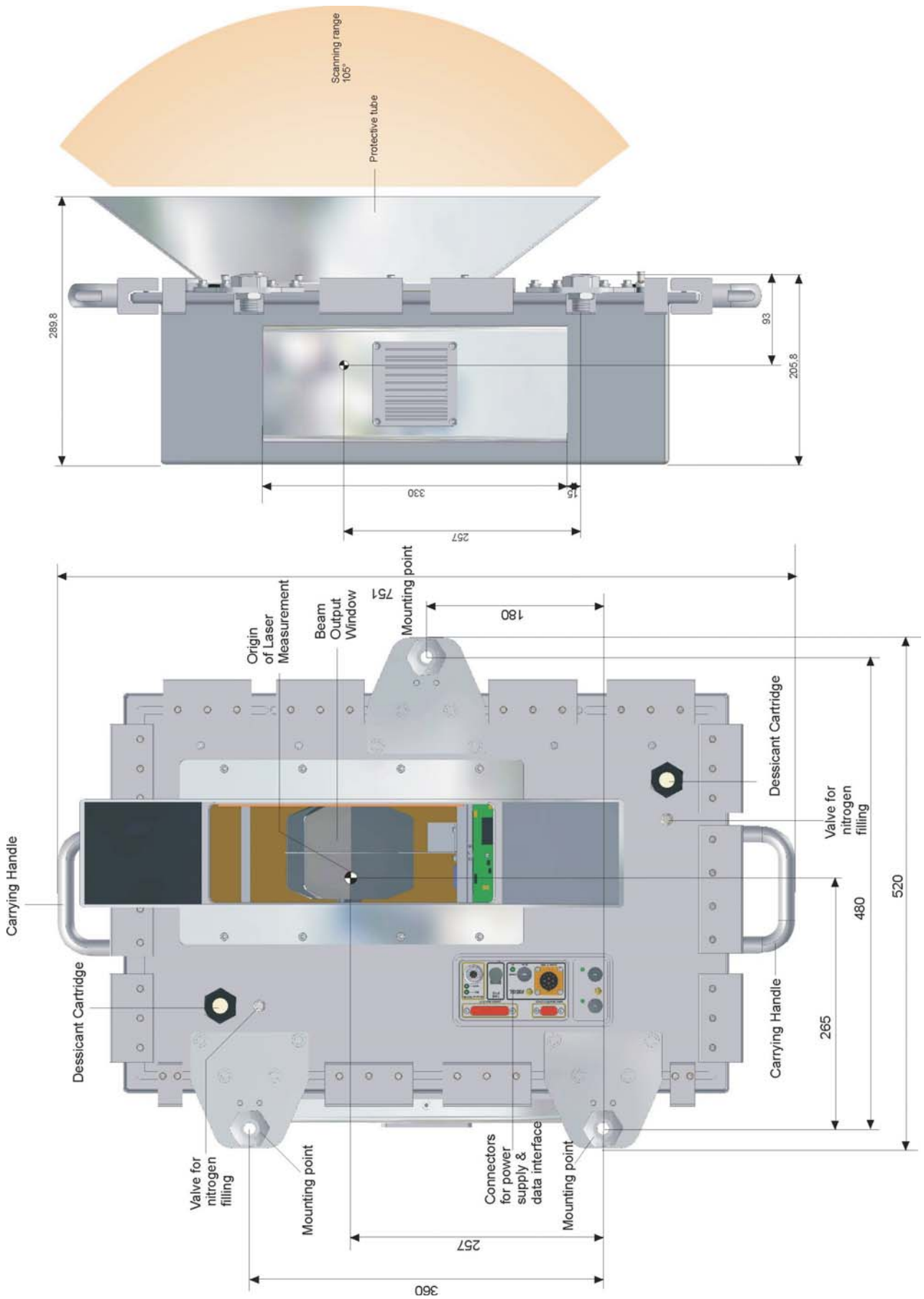
- **Maximum range up to ≥ 100 m**
@ target reflectivity as poor as 10% !
- **Ranging accuracy 20 mm**
- **Scan angle 105 deg**
- **Scan rates up to 5 Hz**
- **Linear scan**
- **Integrated TCP/IP Ethernet interface**
- **Integrated 2-axis inclination sensors**
- **Rugged overall design for harsh industrial environment**
- **Wide operating temperature range**
- **Sealed internal climate control (IP 65)**

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RIEGL
LASER MEASUREMENT SYSTEMS

Dimensional Drawings of RIEGL LMS-Q500



Technical data of *RIEGL* LMS-Q500

Rangefinder performance

Maximum measurement range ¹⁾	
for natural targets, $\rho \geq 10\%$	$\geq 100\text{ m}$
for natural targets, $\rho \geq 80\%$	$\geq 300\text{ m}$
Minimum range	5 m
Accuracy ^{2) 4)}	20 mm
Precision ^{3) 4)}	15 mm
Measurement rate ⁵⁾	2 000 Hz (up to 10 000 Hz on request)
Laser wavelength	near infrared
Beam divergence ⁶⁾	2.7 mrad
Laser product classification ⁷⁾	Class 1 for the scanned laser beam

according to IEC60825-1:2007
The following clause applies for instruments delivered into the United States: Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007.



Scanner performance

Scanning mechanism	rotating / oscillating mirror
Scan angle range ⁸⁾	max. 105°
Scan speed ⁸⁾	typ. 2 scans/sec, max. 5 scans/sec
Angular stepwidth	typ. 0.105° (1000 points/scan)
Angle measurement resolution	0.002°

Inclination sensors

Tilt range	$\pm 30^\circ$
Resolution	0.01°
Accuracy	$\pm 0.15^\circ$

General technical data

Interface: for configuration & data output	TCP/IP Ethernet, 10/100 MBit/sec
for configuration	RS 232, 19.2 kBd
for data output	ECP standard (enhanced capability port) parallel
Input voltage range	18 - 32 V DC, 24 V DC nominal
Power consumption	
for electronics	30 W
for temperature control	115 W
Main dimensions (L x W x H)	617 x 407 x 206 mm
Weight	approx. 32 kg (with protection tube)
Temperature range	-25°C up to +45°C (operation) -25°C up to +60°C (storage)
Protection class	IP65
Mounting	3 adjustable mounting points

1) The following conditions are assumed: - target is larger than footprint of laser beam
- perpendicular angle of incidence
- visibility 10 km
- average ambient brightness

2) Accuracy is the degree of conformity of a measured quantity to its actual (true) value.

3) Precision, also called reproducibility or repeatability, is the degree to which further measurements show the same result.

4) One sigma @ 50 m range under *RIEGL* test conditions.

5) Measurement rate depends on the selected scan parameters

6) 2.7 mrad correspond to 27 cm increase of beam width per 100 m distance

7) The classification is based upon the assumption that the laser beam is continuously scanned.

8) Scanning parameters can be set via user interface.

Information contained herein is believed to be accurate and reliable. However, no responsibility is assumed by *RIEGL* for its use.
Technical data are subject to change without notice. Data sheet, LMS-Q500, 28/07/2010



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