

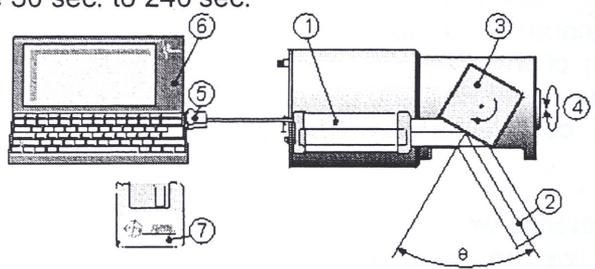
3D IMAGING SENSOR LMS-Z210

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The LMS-Z210 is a unique sensor specifically designed for the acquisition of three dimensional images. A rotating mirror directs the internal laser rangefinder's transmit beam over a precise angular pattern. The resulting range measurements comprise a very accurate three dimensional representation of the scene.

Scene acquisition for virtual reality modeling applications
 3D-imaging of buildings for architectural applications
 Topographic mapping of quarries, mines, tunnels, etc.
 Dimensional measurements of vessels, furnaces, tanks, etc.

- Operated by any standard PC or Notebook
- Measuring range up to 350 m
- Measuring accuracy typ. ± 2.5 cm
- Measurement rate up to 20 000 Hz
- Field of View up to $80^\circ \times 340^\circ$
- Scan time 30 sec. to 240 sec.



Principle of operation

The range finder electronics (1) of the 3D scanner LMS-Z210 is based upon the RIEGL LD90-3 laser distance meter, optimized in order to meet the requirements of high speed scanning (fast laser repetition rate, fast signal processing and high speed data interface).

The fast angular deflection ("line scan") of the laser beam (2) is realized by a rotating polygon (3) with a number of reflective surfaces. It rotates continuously at adjustable speed to provide an unidirectional scan within an angle of $q = 80^\circ$. The slow scan ("frame scan") is provided by rotating the complete optical head (4) up to 340° .

The gained information of RANGE, SIGNAL AMPLITUDE, and ANGLE is provided via an 8 bit parallel data output which can be connected directly to the ECP compatible LPT printer port (5) of a PC (6), Laptop, or equivalent. This PC can be equipped with the RIEGL SCAN-software (7). It is a program running under Win95 / WinNT for data acquisition & real time display. The displayed 3D range images can be zoomed and copied to the clipboard. For further processing the scanner data are logged to disk.

