

LMS200/291

Features

- 180° coverage
- Indoor applications
- High measurement resolution (10 mm resolution)
- Contact-free measurement
- Target objects require no reflectors or markings
- High scanning frequency (up to 75 Hz)
- Transfer of measurement data in real time
- Active system, no illumination of target objects necessary
- Measurements possible over long distance (up to 80 m)
- Compact device construction
- Three internally programmable monitoring fields assigned to three switching outputs



Our non-contact Laser Measurement System (LMS) can be used for standard applications involving measurement of objects and position determination, monitoring areas, vehicle guidance and collision control. The fundamental ability of LMS is to offer accurate distance measurement throughout the 180° scanning field. Within this field, the LMS can be programmed to monitor multiple zones. These zones can then be assigned to solid state outputs of the LMS. Beyond this simple mode of operation the LMS will transmit all 180 measurements via a

high speed RS 422 serial port. The Host system can then use this data for specific applications.

LMS measurements are based on time-of-flight measurement. The LMS calculates the distance to the object using the time of flight of pulsed light; i.e. the length of time between sending and receiving the beam of light.

An extremely short pulse of light (infrared laser beam) is transmitted towards an object. Part of the light is

reflected back to the unit a fraction of a second later. A rotating mirror deflects the pulsed light beam to many points in a semi-circle. The precise direction is given by an angular sensor on the mirror (laser RADAR). A large number of coordinates measured in this way are put together to form a model of the surrounding area's contours. Using the serial interface of the unit, measurements are transferred in real time to a host PC/PLC for further evaluation.



LMS 200/291 Technical Specifications

	LMS 200	LMS 291
General		
Range	Maximum 80 m (262.5 ft)	
Angular Resolution	0.25°/0.5°/1.0° (selectable)	
Response Time	53 ms/26 ms/13 ms	
Measurement Resolution	10 mm (0.39 in)	
System Error (environmental conditions: good visibility, Ta = 23°C (73°F), reflectivity 10%...10,000%)	Typ. ± 20 mm (mm-mode), range 1...8 m (3.2...26.2 ft) Typ. ± 4 cm (cm-mode), range 1...20 m (3.2...65.6 ft)	Typ. ± 60 mm (mm-mode), range 1...4 m (3.2...13.1 ft) Typ. ± 35 mm (mm-mode), range 4...20 m (13.1...65.6 ft)
Statistical Error, Standard Deviation (1 sigma)	Typ. ± 5 mm (at range ≤ 8 m / ≥ 10% reflectivity / ≤ 5 kLux)	Typ. ± 10 mm (at range 1...20 m / ≥ 10% reflectivity / ≤ 5 kLux)
Electrical		
Data Interface	RS 232/RS 422 (configurable)	
Transfer Rate	9.6/19.2/38.4/500 kBd	
Switching Outputs, Standard Variants	3 x PNP; typ. 24 V DC; OUT A, OUT B maximum 250 mA, OUT C maximum 100 mA	
Supply Voltage (scanner-electronics)	24 V DC ± 15% (maximum 500 mV ripple), current requirements maximum 1.8 A (including output load)	
Power Uptake	Approx. 20 W (without upload)	
Electrical Protection Class	Safety insulated, protection class 2	
Interference Resistance	According to IEC 801, part 2-4; EN 50081-1/50082-2	
Ambient Temperature (Operating / Storage)	0...50°C (32°...122°F) / -30°...70°C (-22°...158°F)	
Mechanical		
Enclosure Rating	IP 65	
Weight	Approx. 4.5 kg	
Dimensions	185 x 156 x 210 mm (7.3 x 6.1 x 8.3 in); with cables: 185 x 156 x 265 (7.3 x 6.1 x 10.4 in)	
Vibration Fatigue Limit	According to IEC 68 part 206, table 2c, frequency range 10...150 Hz, amplitude 0.35 mm or 5 g single impact IEC 68 part 2-27, table 2, 15 g/11 ms permanent vibration IEC 68 part 2-29, 10 g/16 ms Shock absorbers are recommended for heavy vibration and impact demands (e.g. AGV applications).	