DIGITAL LASER DISTANCE METER
LD05-A80

The *RIEGL* LD05-A80 is a multi-purpose laser distance meter based on precise time-of-flight laser range measurement. It uses state-of-the-art **digital signal processing** enabling precise distance measurement for complex multi-target situations even under bad visibility conditions. Digitizing the echo signal and subsequent analyzing allows multi-target distance measurements. Up to 5 target distances can be detected and provided for each laser shot.

The **digitized waveform data** can be logged to either an internal memory card or a TCP/IP data port. Subsequent offline **full wave form analysis** allows detailed investigation of the target situation, especially with complex target situation

The *RIEGL* LD05-A80 can be configured for various application modes:

- **High Penetration and High Accuracy Mode** for complex target situations, based on a sequence of laser shot measurements, self-adapting (rather low) data update rate, significant enhancement of the maximum range based on Pre-Detection-Averaging.
- **Fast Mode** is between High Speed and High Penetration Mode.
- **High Speed Mode** for simple target situations, high data update rate.

- Short infrared laser pulses providing **excellent interference immunity**
- Narrow measurement beam with low divergence for **excellent spatial resolution**
- **Measurement to almost any surface** regardless of the angle of incidence of the beam and the surface characteristics
- Lightweight, stable aluminium housing, ready t**o be used in harsh industrial environments**.
- Different basic instrument types with pre-configured measurement modes, but also **individually programmable for customer specific applications**.

Technical Data LD05-A80

Real Time Range Measurement Mode:

Specifications

Examples for integrated predefined measurement programs:

High Penetration and High Accuracy Mode	
Max. measurement range [1) 2)] for natural targets, ρ ≥ 80 % for natural targets, ρ ≥ 10 %	 up to 3000 m up to 1000 m
Min. measurement range	10 m
Measurement accuracy [3) 4)]	typ. ± 25 mm
Repeatability [3) 4)]	15 mm
Measurement rate [5)]	typ. 50 Hz
Max. number of targets	5

Fast Mode	
Max. measurement range [1) 2)] for natural targets, ρ ≥ 80 % for natural targets, ρ ≥ 10 %	 up to 1650 m up to 580 m
Min. measurement range	10 m
Measurement accuracy [3) 4)]	typ. ± 35 mm
Repeatability [3) 4)]	15 mm
Measurement rate	500 Hz
Max. number of targets	5

High Speed Mode	
Max. measurement range [1) 2)] for natural targets, ρ ≥ 80 % for natural targets, ρ ≥ 10 %	 up to 950 m up to 330 m
Min. measurement range	10 m
Measurement accuracy [3) 4)]	typ. ± 50 mm
Repeatability [3) 4)]	15 mm
Measurement rate	5000 Hz
Max. number of targets	5

1) The following conditions are assumed
   - target is larger than footprint of laser beam, • perpendicular angle of incidence, • visibility 10 km
   - typical values for average ambient brightness conditions. In bright sunlight, the operational range is considerably shorter than under an overcast sky. At dawn or at night the range is even higher.
2) Not specified for retroreflectors.
3) One sigma standard deviation @ 50 m range under *RIEGL* test conditions.
4) Plus distance depending error ≤ ± 20 ppm.
5) With self-adapting measurement time selected, the effective data update rate depends on the number ob targets and their reflectivity and distance.

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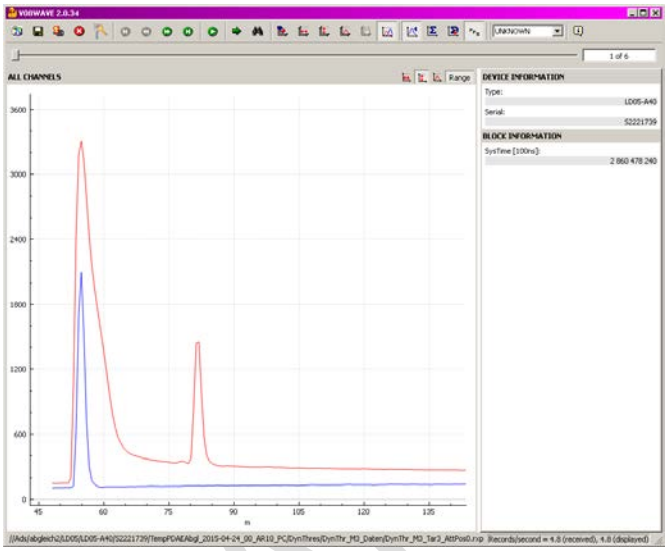
Full Waveform Mode (Optional):

The digitized waveform data can be logged to either an internal memory card or to a TCP/IP data port. Subsequent offline full waveform analysis allows detailed investigation of the target situation, especially with complex target situations.



Laser Specifications

Wavelength	near infrared
Beam divergence [1)]	typ. 0.8 mrad
Laser product classification according to IEC 60825-1:2007 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.	Laser Class 1M  Viewing the laser output with certain optical instruments designed for use at a distance (for example, telescopes and binoculars) may pose an eye hazard.

1) 0.8 mrad correspond to 80 cm beam width per 1000 m distance.

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General Technical Data

Data interfaces Data port Configuration port WEB interface	 TCP/IP, 10/100/1000 MBit port or RS232/RS422 TCP/IP, 10/100/1000 MBit port or RS232/RS422 TCP/IP
Power supply	11 – 28 V DC, 24 VDC nominal
Power consumption	18 W
Main dimensions [1] (L x W x H) mm	323 x 242 x 112
Weight	approx. 6.4 kg
Protection class	IP64
Temperature range Operation Storage	 -5°C up to +45°C [2] -20°C up to +60°C [2]
Telescope	magnification 2.5 x 20
Optional Analog Output Switching Output	 4 – 20 mA [3], not galvanically isolated, resolution 16 Bit, linearity 1 ‰ of full scale 2 x PNP transistor driver [4], built-in thermal and short-circuit protection, switching current 200 mA max., switching voltage = supply voltage

1) See dimensional drawings.
2) The life expectancy (MTBF) of the instrument is reduced in case of operation and/or storage at high temperatures.
3) Operating range selectable via TCP/IP port or serial interface.
4) Switching points adjustable via TCP/IP port or serial interface.

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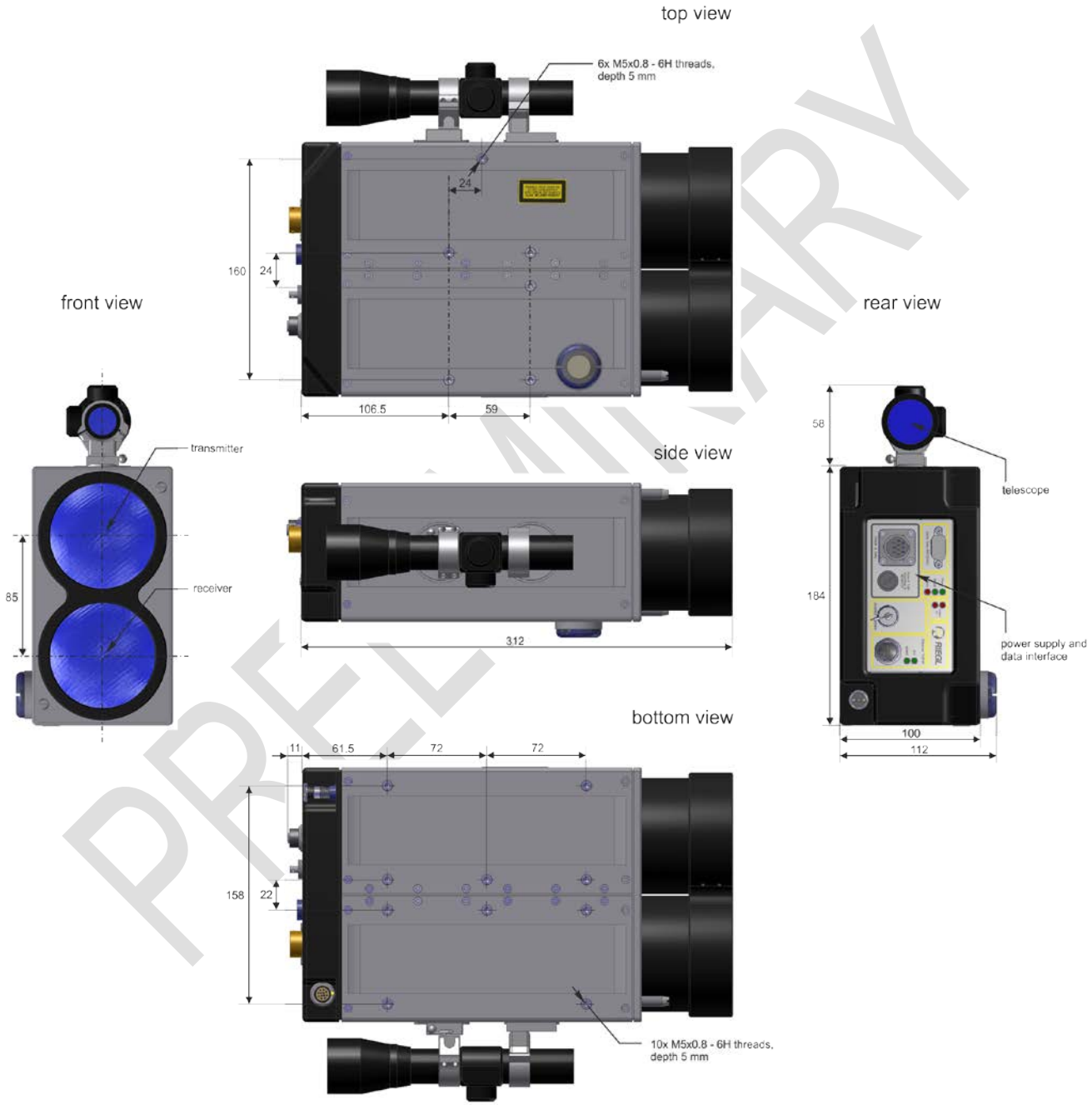
Dimensional Drawings

All dimensions in mm



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