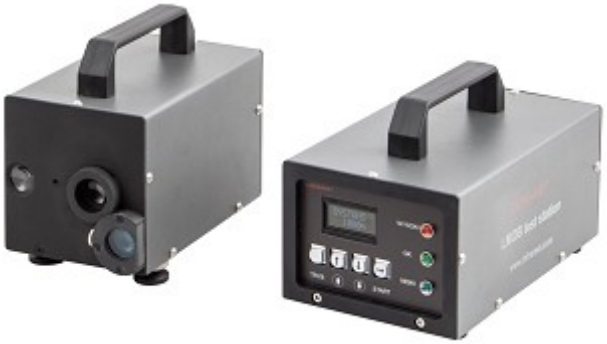
LMOB

Variable distance simulator for testing laser range finders



a)

b)

Fig. 1. LMOB test system: a) photo, b)block diagram

BASIC INFORMATION:

LMOB is a variable distance simulator for testing receivers electronics of laser range finders. From design point of view it is a generator of light pulses of precisely regulated time delay where pulse generation is triggered by a laser pulse emitted by transmitter of tested LRF. The tested LRF, if working properly, should indicate distance simulated by LMOB.

LMOB is a potentially quasi universal test system that enables testing receivers of great majority of LRFs. This universality can be achieved by changing front wall of head of LMOB simulator in order to vary distances between different optical channels and changing of laser diode (working as pulse emitter) in order to simulate distance for LRFs that operate at different wavelengths. However, LMOB is typically delivered to customers as a system dedicated for tests of a single type of LRF of precisely determined location of optics and wavelength.

LMOB is characterized by small size and mass. It makes it a perfect choice for field tests or other applications where portable test system is needed.

DESIGN:

LMOB is built from two main blocks: HB head and CB controller. The HB head is composed from three modules: laser receiver, laser emitter and optional aiming mark generator. The design is symmetric to design of LRF to be tested. Receiver the CB head must be located exactly opposite to transmitter of tested LRF. Emitter of the CB head must be located exactly opposite to receiver of tested LRF. Aiming mark generator is opposite to optical sight channel of tested LRF. The receiver of HB block triggers the emitter of the same block when irradiated by a laser pulse from tested LRF. The triggering delay is regulated using CB controller in order to obtain ability to regulated distance to simulated target. Peak pulse power and time width of laser pulses generated by the emitter can be regulated, too.

TEST CAPABILITIES

LMOB enables mainly measurement of distance measurement accuracy of tested LRFs. It can be also used for simplified check of sensitivity of receiver (number of levels depends on version).

Both monopulse LRF and multipulse LRF can be tested. Acceptable wavelengths of tested LRFs: 905/910 nm, 1060nm, 1540nm, 1550nm, 1570nm. Typical simulated distance range: from 100m to 10km. Distance resolution 2.5m.

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VERSIONS

LMOB-A – simplified version where user can regulated simulated distance (triggering delay) but cannot regulate peak pulse power and time width of laser pulses generated by the emitter. The latter parameters are fixed by Inframet according to customer preferences.
LMOB-B – expanded version where user can regulated simulated distance (triggering delay) and can regulate peak pulse power (dynamic 256 times) and time width of laser pulses generated by the emitter. It is optionally possible to regulate number of reflections generated by simulated target.

TECHNICAL PARAMETERS

No	Parameter	Value
1	Range of simulated distance	Od 400m do 10 000mm
2	Distance resolution	≤ 2,5m
3	Accuracy of simulated distance	≤ 5m
4	Range of regulation of pulse width	10ns to 500ns
	Dynamic of regulation of pulse peak power	At least 256 - attention : relative regualtion
5	Acceptable wavelengths of tested LRFs	905/910 nm, 1060nm, 1540nm, 1550nm, 1570nm
6	Working temperature range	-5ºC to +40ºC (can be extended)
7	Storage temperature range	-5ºC to +55ºC
8	Dimensions	Head: 20x12x17 cm, Controller: 23x14x14.5
9	Mass	Head: 2.5kg, Controller: 2.4kg

Data sheet version: 1.4

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