

LJT120

System for boresight of laser range finders



Fig. 1. Photo of LJT120 test station

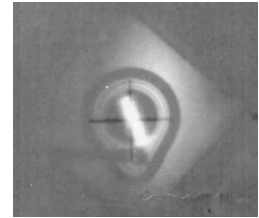


Fig. 2. Fused image of transmitter spot, cross reticle and receiver

BASIC INFORMATION:

In order to enable proper work of laser range finder not only transmitter and receiver must be fully operational but also these two main modules and aiming channel (internal optical sight, thermal imager, VIS-NIR camera) must be properly aligned.

This means that:

1. Optical axis of transmitter must be parallel to optical axis of the aiming device,
2. Optical axis of receiver must be parallel to optical axis of transmitter.

If condition no 1 is not fulfilled then LRF will miss target during shooting. If condition no 2 is not fulfilled the operational range will be lower or LRF will not work at all. Accurate boresight of LRFs at R&D/production phase is typically a difficult and time consuming task.

LJT120 is a modular system to support boresight of all types of LRFs (monopulse/ multipulse, different wavelengths) and at different application levels (R&D, manufacturing line, final quality check, maintenance, repairing workshop).

The system is optimized to enable high speed, accurate, user friendly boresight of laser range finders. In detail

LJT120 generates three overlapped images: 1)laser spot emitted by the transmitter, 2)cross reticle of the aiming device, 3) detector of the receiver. In case of perfectly aligned LRF the centers of laser spot, cross reticle and the receiver detector are at the same position. This graphical presentation of alignment errors makes possible user friendly boresight operation to achieve zero alignment errors. LJT120 station enables also ultra accurate measurement of divergence angle laser beam emitted by the transmitter or angular size of detector of the receiver.

LJT120 is an universal test station that can be used to testing virtually all LRFs offered on market.

TESTED LASER RANGEFINDERS

Parameter	Value
Types of tested LRFs	monopulse or multipulse, dual channel or coaxial, with internal or external aiming channel,
Wavelengths of tested LRFs:	905/910 nm, 1064nm, 1540nm, 1550nm, 1570nm (other wavelengths possible).
Maximal aperture of optics of transmitter/receiver of tested LRF	70mm
Maximal distance between transmitter/receiver of tested LRF and aiming channel	80mm

Attention: user may be expected to prepare adapters for proper positioning of tested LRF relative to LJT120 station

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MEASURED PARAMETERS

1. Alignment error between transmitter LRF and internal optical sight
2. Alignment error between transmitter of LRF and external thermal imager
3. Alignment error between transmitter of LRF and external VIS-NIR camera
4. Alignment error between transmitter and receiver of tested LRF
5. Divergence angle of transmitter of tested LRFs
6. Field of view of the receiver of tested LRF

MEASUREMENT RANGE, RESOLUTION AND UNCERTAINTY

Parameter	Measurement range	Measurement resolution	Measurement uncertainty
Alignment error between transmitter of LRF and internal optical sight used as an aiming device	10 mrad	0.04 mrad	0.1 mrad
Alignment error between transmitter of tested LRF and external thermal imager	12 mrad	IFOV of thermal imager	0.1 mrad
Alignment error between transmitter of tested LRF and external VIS-NIR camera	12 mrad	IFOV of VIS-NIR camera	0.1 mrad
Alignment error between transmitter and receiver of tested LRF working at range 900 – 1100 nm	10 mrad	0.05 mrad	0.1 mrad
Alignment error between transmitter and receiver of tested LRF working at range 1530 – 1570 nm	4 mrad	0.05 mrad	0.1 mrad
Field of view of the receiver when LRFs working at range 900 – 1100 nm	10 mrad	0.05 mrad	0.1 mrad
Field of view of the receiver when LRFs working at range 1530 – 1570 nm	4 mrad	0.05 mrad	0.1 mrad
Divergence angle of transmitter LRFs	10 mrad	0.05 mrad	0.1 mrad

Mass and Dimensions

Weight 45 kg (base module + platform) + around 3 kg additional parts + PC

Dimensions (base module + platform) (H x L x W) 650 mm x 1600 mm x 300 mm

Data sheet version: 1.4

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