

# JT test systems

Systems for boresighting surveillance systems



Fig. 1. Photo of the JT test station

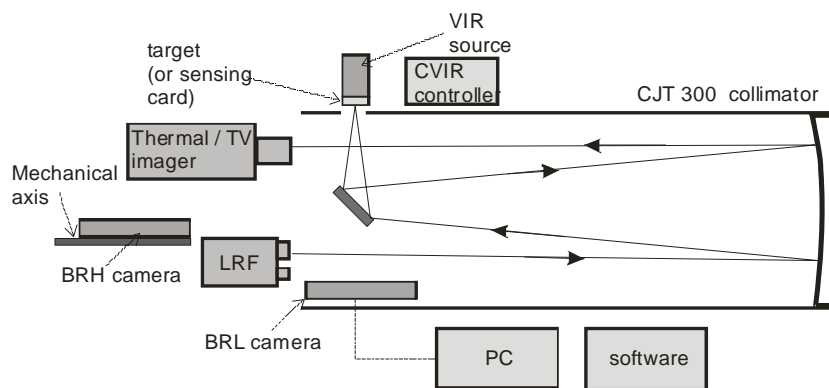


Fig.2. Block diagram of the JT test system

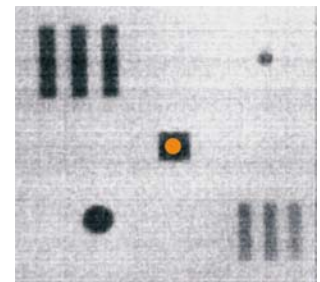


Fig.3. Image generated by a thermal image with superimposed artificial spot of laser range finder

## BASIC INFORMATION:

Boresighting is a process to align optical axis of single system or a series of optical or electro-optical systems with a certain reference optical axis or mechanical axis. The JT series test systems are specialized test systems manufactured by Inframet optimized for task of boresighting, focusing and optionally to carry out some basic testing of the multi-sensor surveillance systems, or independent thermal sights, TV sights, optical sights, night vision sights.

Boresighting of the mentioned above surveillance systems can be also done using other Inframet test systems: DT, TVT, NVS, LT, MS. However, for the latter test systems extensive testing is the main task, and the boresighting is an additional optional task. In case of JT test systems we have inverse situation. Therefore JT test station is a cost effective solution for applications when basic checking of surveillance

systems is enough but at the same time proper aligning of electro-optical sensors to a reference optical/mechanical axis is important (field/depot tests).

The JT stations is a test system that works as:

- image projector that projects images of standard targets into direction of tested/to be aligned imaging sensors ( thermal imagers, TV cameras, optical sights, night vision sights),
- imaging sensor of spot illuminated by tested laser range finders, laser illuminators, etc,
- high accuracy imaging sensor attached to reference mechanical axis showing direction of this axis,
- a computer that carries analysis of information from different sensors and determines relative angular coordinates of optical sensors of each other and relative angular coordinates of the optical sensors to a reference mechanical axis.

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## Systems for boresighting surveillance systems

### FEATURES:

- Cost effective solution for task of boresighting, focusing and basic testing of multi-sensor surveillance system or separate thermal imagers or TV cameras (LLLTV cameras)
- JT systems can be used to align all typical surveillance systems (thermal imagers, TV cameras, night vision sights, laser range finders and other laser systems, optical sights) to a reference optical axis and to a reference mechanical axis
- Integrated IR/visible light source capable to generate radiation detectable by both thermal imagers and visual sights, and TV cameras (LLLTV cameras)
- A series of CJT collimators of different optical apertures is available. All commercially available thermal imagers, TV cameras, optical sights or multi-sensor surveillance systems can be tested.
- Aligning accuracy of imaging sensors: limited only by angular size of a single pixel in image generated by tested imaging sensors
- Easy to transport due to small mass (below 25 kg in case of CJT collimator of 300mm aperture)
- Uncertainty of aligning to mechanical reference axis is below 0.15 mrad.

### VERSIONS

JT test system can be delivered in form of different versions of slightly different design, different test capabilities and different price level. Versions of JT series systems are described technically using a five digit code.

**Tab. 1. Coding of JT series systems**

	I	II	III	IV	V
Code number	Aperture	Focusing	Test capabilities	Boresighting to reference optical axis	Boresighting to reference mechanical axis
1	100 mm	Fixed distance (typically optical infinity)	Resolution of TV cameras	Boresighting of imaging systems (thermal imagers, TV cameras, optical sights, night vision devices)	No
2	200 mm	Variable distance from at least 300m to infinity	Resolution of thermal imagers	Boresighting of imaging systems and mono-pulse laser range finders	Yes. One mechanical adapter.
3	300 mm		Resolution of both TV cameras and thermal imagers	Boresighting of imaging systems and all type laser range finders and laser illuminators	Yes. Two mechanical adapters.
4	400 mm				Yes. Three mechanical adapters

Example: JT 313-31 means the following JT test system: a)Collimator aperture equals 400 mm (optical aperture of tested systems should not be bigger than 400 mm), b) System simulate targets at one fixed distance (optical infinity) and focusing can be done just for this distance. The system cannot also simulate the target at variable distance. c)System can be used for measurement of resolution of TV cameras and relative MRTD measurements of thermal imagers, d)System enables boresighting of imaging systems and all types of laser range finders (both mono-pulse LRFs and multipulse laser diode LRFs) to reference optical axis of an imaging system (for example thermal imager). e)System cannot be used for boresighting to a reference mechanical axis.

\*specifications are subject to change without prior notice

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