

INFRARED VIEWERS



MANUAL

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INTRODUCTION

Infrared (IR) radiation is non-visible to human eye, so there is a need for a device to observe the radiation. Usually fluorescence paper is used for this purpose. However it takes a long time to align infrared laser beam. **Laserand** offers IR viewer, which helps easily observe the IR radiation, align laser beam and calibrate laser system. Near IR viewers are extremely required in each laboratory, because users can locate stray beams reflections without eye damage or injuries. The IR series infrared viewers are designed to view a light of laser sources, which emit light in near infrared zone in 350-2000 nm spectral region. View-ers are used to observe indirect radiation of IR Light emitting diodes (LED's), diode, dye and other laser and laser sources. We offer low cost, compact battery operated IR viewers. This device allows viewing continuous lasers radiation as well as pulsed lasers radiation with pulse duration from ps to μ s without synchronization.

APPLICATION

IR-1700V3 and IR-2000V3 are small, high performance infrared viewer with extended spectral sensitivity designed to observe radiation emitted by infrared sources such as GaAs IR LED's, diode-or solid-state lasers as well as for use in industry, professional

darkrooms, etc. It is very convenient device for applications involving the alignment of infrared laser beams and optical components in near-infrared systems. The lightweight, compact device can used hand-held, post mounted with the 1/4-20 internal thread or facemask mounted for hands free operation.

POWER DENSITY

Approximately minimum power densities required to view an infrared laser beam from a distance one meter.

Model	Wavelength, nm	Power density, mW/cm ²
6 - IR-1700V3	1500	30 - 50
	1700	100 - 200
6 - IR-2000V3	1500	10 - 20
	1700	100 - 150
	1800	200 - 300
	2000	3000 - 6000

SPECTRAL SENSITIVITY

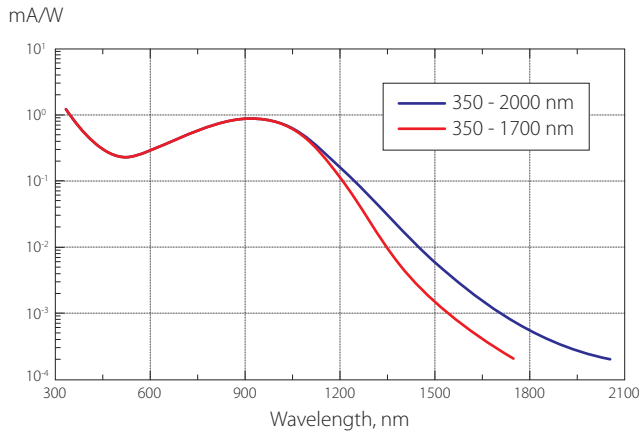


Figure 1. Typical Spectral sensitivity for IR viewers

OPERATION

CAUTION! Do not use the device for direct beam viewing. Damage to the highly sensitive photo-cathode material will occur if the incident light on the objective lens exceeds 10mW/cm². Long-term over-light may cause saturation of screen and decrease of resolution or irreversible reduction of photocathode response.

1. Install two LR44 batteries into cell compartment (1) observing the polarity.
2. Screw the handle (6) into the R1/4" carving on the body of IR viewer.
3. To switch on the unit, first press and then turn button (2) to the right or to the left by an angle of 90 degrees.

After switching off the device continues to work some minutes due to the reserved energy.

4. By focusing objective (3) and eyepiece (4) in turn, try to achieve a bright image of the object under observation.

IR-1700V3 and IR-2000V3 viewers allow viewing continuous lasers radiation as well as pulsed lasers radiation with pulse duration from ps to μs without synchronization.

5. When observations are made in the near infrared region, use cut-off filter (5) with transmission from 700 nm and further. When visualizing is reflected radiation, use a metallic surface for a reflective one, as any paper will absorb heavily.

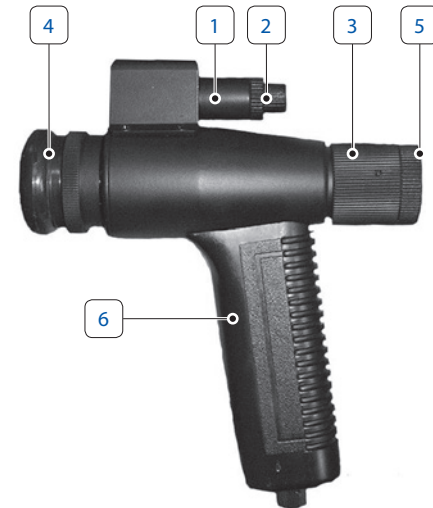


Figure 2. Scheme of IR viewer

MAINTENANCE INSTRUCTION

1. During the IR viewer operation there is no danger of electric shock.
2. When brought into a warm room from the cold outside the optical elements may become wet.
3. Prevent the viewer from mechanical damage and moisture.
4. Protect the lenses from dirt. If necessary, clean them with clean soft cloth; remove oiled spots or deposit with cotton wool slightly wetted in rectified alcohol or with alcohol-ether mixture.
5. If necessary, unscrew the lens and clean the photocathode, because the dust can be viewed through hole of cover of the lens.

BLACK SPOTS ON THE SCREEN

Black spots on the screen are cosmetic blemishes in the image converter which do not affect the performance or reliability of an infrared viewers and some number of varying size are inherent in the manufacturing processes.

TECHNICAL PARAMETERS

Model	6 - IR1700V3	6 - IR2000V3
Spectral sensitivity	350 - 1700 nm	350 - 2000 nm
Resolution (center)	50 Lp/mm	
Field of view	25 degrees	
Magnification	1.8X	

Objective lens:	F 1.4 / 26 mm
Focus	0,2 m to inf
Battery	3V, 2 LR44 type
Battery life (continuous)	18 hours
Input voltage from external power supply	-
Weight	0.28 kg
Dimensions	130x65x43 mm
Temperature range	
Photocathode	S-1+, D 11 mm
Non-uniformity of a luminescence of the screen	< 20 %
Non-uniformity of response	< 15 %
Distortion of image	< 18 %
Tripod or handle connection	R1 / 4"

Standard kit includes: IR viewer, IR filter, handle, batteries and case.

Accessories available upon request:

- Facemask for hands free operation;
- Infrared illuminator (800nm or 900 nm);
- Neutral density filter (2-5% at 1064 nm laser wavelength);
- Adapter to a microscope;
- Adapter to AAA size batteries;
- Lens 3.5X (F2/50mm with iris diaphragm).

WARRANTY

The manufacturer warrants its products against defects in materials and workmanship for a period of twelve months from the original date of Invoice. Any device returned for warranty service must be judged by the manufacturer as having been used according to its original design intents. As such, misuse, neglect, or any abnormal use is not covered by this warranty.

The manufacturer will repair or replace such products or parts thereof, which, upon inspection by the manufacturer, is found to be defective in either materials or workmanship. As a condition of the manufacturer's obligation regarding warranty work, the product must be returned to the manufacturer with a satisfactory proof of purchase.

This warranty is null and void if equipment has been altered, tampered with, modified, or otherwise abused, mishandled, or subjected to unauthorized repairs.

The manufacturer disclaims any other warranties, either expressed or implied, except as expressed herein. The sole obligations of the manufacturer are repair or replace the covered device.