Model IRV1 Infrared Viewing Device

Application

The IRV1 is a high performance infrared viewer with extended spectral sensitivity designed to observe radiation emitted by infrared sources such as GaAs IR LEDs, diode- or solid-state lasers as well as for use in industry, professional darkrooms, etc. It is a very convenient viewer for applications involving the alignment of infrared laser beams and of optical components in near-infrared systems.

The lightweight, compact device can be used handheld, post mounted with the ¼-20 internal thread, or facemask-mounted for hands-free operation.

Specifications

	IRV1(2000)	IRV1(1700)
Spectral response (nm)	350-2000	350-1700
Resolution (lp/mm, center)	50	
Field of view (degrees)	25	
Magnification	1.8X	
Objective lens (mm)	F1.4/26mm	
Optional lens (mm)	4X (F2/58)	
Focus (m)	0.15 to ∞	
Battery type	2 x LR44	
Weight (kg)	0.24	
Dimensions (mm)	130 x 65 x 43	
Temperature range (°C)	-10° to +40°	

NOTE: Tripod or handle connection – R1/4”

Standard kit includes: IR viewer, IR filter, handle, case

Caution!

Long-term over-exposure may cause satiation of screen and decrease in resolution or irreversible reduction of photocathode response.

Operation

1.) Install the batteries into cell compartment (1), observing the polarity.
2.) 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.
3.) By focusing **both** the objective (3) and eyepiece (4) in turn, try achieving a bright image of the object under observation.
4.) For “goggle” operation, place the IR viewer onto the “swallow tail” of the facemask, and clamp it with screw. Using the facemask screws, adjust the unit position to achieve the most convenient operation.

When observations are made in the near-IR, use the IR cut-off filter.

Power Technology Incorporated
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1.) Cell compartment
2.) ON/OFF switch
3.) Objective lens
4.) Eyepiece

Please note

You may notice an occasional small black spot on the viewer screen. These spots do not affect performance or reliability of the viewer and are due to cosmetic blemishes in the image converter. They are inherent in the manufacturing process.

Spectral Sensitivity of IRV1

Please note that the minimum detectable signal for a near-infrared viewer depends on the following.

- Power density
- Wavelength of incident radiation (nm)
- Effective aperture of the objective lens
- Distance between the spot and the viewer
- Time duration of the signal (pulsed or continuous)
- Reflectivity of the diffusing surface
- Sensitivity of the human eye or device used in viewing the output of the IR viewer

The minimum power densities required to view an IR beam from a distance of one meter are approximately

- 20µW/cm^2 for a 1, 06µm
- 500µW/cm^2 for a 1, 3µm

To determine the minimum power density in mW/cm^2 required to yield a detectable signal, use the following procedure. Divide the laser power in milliWatts by the area of the beam at the distance to be measured. For an elliptical beam, the area is equal to 2/3 x w x h. For example, if h = 10mm and w = 40mm, then the area of the beam = 2/3 x 10mm x 40mm = 2/3 x 400mm^2 = 266.7mm^2. To convert to cm^2, divide by 100. Therefore, the area = approximately 2.7cm^2. To determine the required power density, divide the laser power by the 2.7 cm^2 figure. For example, if the laser output is 5mW, the required power density will be 5mW/2.7 cm^2, or 1.85mW/ cm^2.

For a circular beam, area is equal to $\prod \mathbf{x\ r^2}$, where r = the radius of the beam. For example, if both the height and width of a beam at the distance to be measured are 5mm, then the area of a beam at this distance = 3.14 x 2.5mm^2 (half the diameter, squared) = 3.14 x 6.25mm = 19.6mm. Divide by 100 to convert to cm^2, so the area = approximately .19cm^2. Now divide laser power by .19cm^2 to determine the required power density. For example, if the laser output is 5mW, the required power density will be 5mW/.19cm^2, or 26.31mW/cm^2.

The drawing on the following page illustrates the typical spectral response of our IRV1 viewer.

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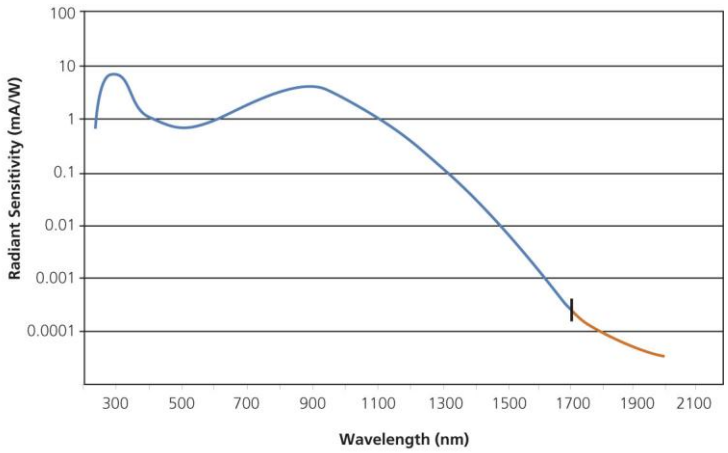

Accessories available upon request:

1.) Facemask for hands-free operation.
2.) Infrared illuminator (810-950nm)
3.) Neutral density filter (2-5% at 1064nm laser wavelength)
4.) Adapter to a microscope
5.) Adapter to AAA type batteries
6.) 4x lens (F2/58mm with iris diaphragm)

Warranty and Repair Return Policy

The IRV1 is warranted for twelve (12) months for all parts and twelve (12) months for all labor from the date of the first consumer purchase.

No return of merchandise will be accepted by PTI without an RMA, Return Material Authorization, number, issued by the factory and prominently displayed on the return package.

No return shipments will be accepted "Collect" or "COD". On warranty returns PTI will pay for shipping charges on return of merchandise to the customer.

When contacting the factory for an RMA number, please have the following information available: model number, serial numbers, and a description of the problem.

Models-IRV2(1300), IRV2(1700), IRV2(2000), IRV1(1700), IRV1(2000)

CE Certificate Number- 00083/101/1/2006/CE

These models meet the essential safety requirements of the following directives:
EMC Directive 89/336/EEC, amended by 92/31/EEC and 93/68/EEC
A sample of the product was tested and found to be in conformity with the following standards and/or technical specifications applied:
EN 55011: 1998+A1; 1999+A2:2002 Test Report No. 410/05
EN 61000-6-2:2001

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