KENTEK "Laser People Helping Laser People" ®

LASER COMPONENTS

EV-VIEWER Infrared Viewing Device

Application

The EV-VIEWER is a high performance infrared viewer designed to observe radiation emitted from 350nm to 2000nm. The lightweight, compact device can be used handheld, post mounted with a standard ¼-20 internal thread, or facemask-mounted for hands free operation. The EV-VIEWER operates off one AAA type battery with up to 35 hours of run time or from an external 3VDC power supply.

Specifications

Spectral response	350nm to 2000nm
Resolution (lp/mm,center)	60
Magnification	1X or 2.5X
Objective lens	F1.4/26mm w/o iris (1X) or F2/58mm w/iris (2.5X)
Field of view (degrees)	40 w/1X lens, 18 w/2.5X lens
Focus (m)	0.15 to ∞ w/1X lens, 0.25 to ∞ w/2.5X lens
Battery type	1 x AAA
Input voltage (VDC/mA max)	3/20
Weight (kg)	0.38 w/1X lens, 0.58 w/2.5X lens
Dimensions	155x78x55mm w/1X lens, 220x78x55mm w/2.5X lens
Temperature range (˚C)	-10˚ to +40˚

NOTE: Tripod or handle connection –R1/4”
Standard kit includes: IR viewer, IR filter, handle, case

Caution!

Do not use the device for direct beam viewing. Damage to the highly sensitive photocathode material will occur if the incident light on the objective lens exceeds 10mW/cm^2. Long term over-exposure may cause satiation of screen and decrease in resolution or irreversible reduction of photocathode response.

Operation

1. Install the battery into cell compartment (1) observing battery polarity.
2. Press button (2) to switch on the unit.
3. Adjust focus using both the objective (3) and the eyepiece (5). Try to achieve a bright image of the object under observation.
4. For goggle operation, place the IR viewer onto the dovetail of the facemask and clamp it with a screw. Using the facemask screws, adjust the unit position to achieve the most convenient operation.
5. When observations are made in the near-IR, use the IR cut-off filter (4) .

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1) Cell compartment
2) ON/OFF switch
3) Objective lens 1X (2.5X optional)
4) Cut-off filter (700-1700nm)
5) Eyepiece
6) Plug for DC 3V power
7) Handle
8) DC 3V control diode

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.

Accessories available upon request:

1) Facemask for hands-free operation
2) Infrared illuminator (810-950nm wavelength)
3) Neutral density filter
4) CCD camera adapter
5) C-mount adapter ring
6) Microscope adapter
7) Iris diaphragm
8) Video adapter

Spectral Sensitivity of EV-VIEWER

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

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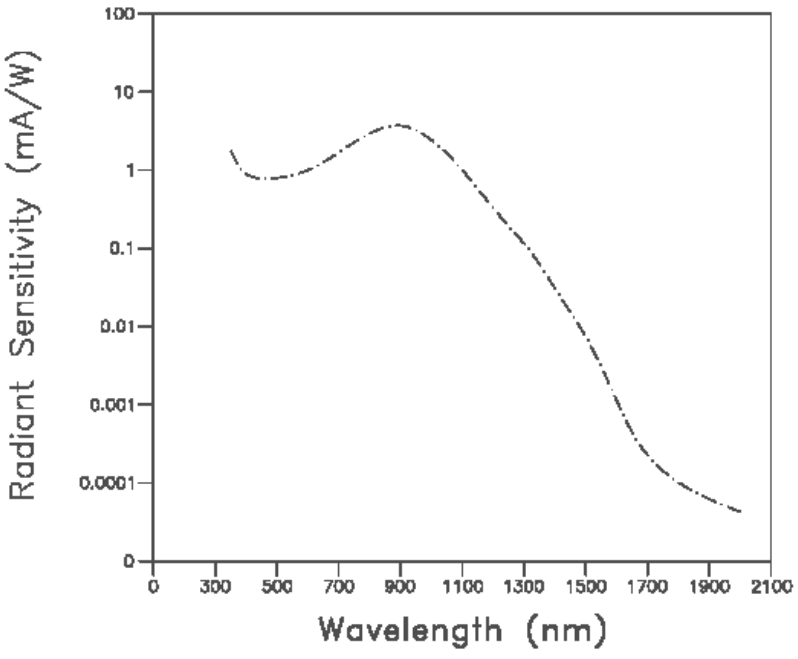
To determine the minimum power density in mW/cm^2 required to yield a detectable signal, use the following procedure:

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 **Π 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 below illustrates the typical spectral response of our EV- VIEWER.



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Warranty and Repair Return Policy

The EV-VIEWER 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 Kentek without an RMA, (Return Material Authorization) number, issued by a sales manager.

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

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

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