

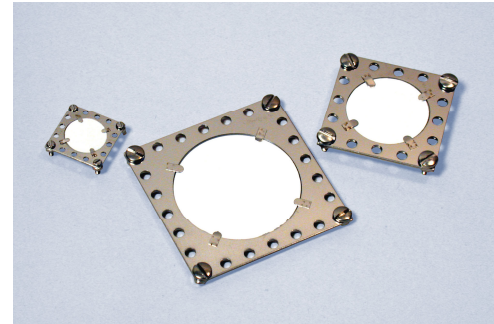
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PHOSPHOR SCREENS (Rugged and UHV types)

Kimball Physics Rugged and UHV Phosphor Screens consist of a high luminosity phosphor coating on a metal or conductive glass plate.

The Rugged Phosphor Screens (RP22) are easy to handle and resistant to mechanical damage. They are mounted to their backing using a bonding agent which has a low, but non-zero, vapor pressure.

The UHV Phosphor Screens (UP22) have no binder and so are better for ultra high vacuum. However, they are more fragile and require greater care when handling, since the phosphor coating is delicate and can be easily destroyed.



SPECIFICATIONS

STANDARD RUGGED and UHV PHOSPHOR SCREENS	
Phosphor Type	ZnS: Ag Type 1330 (P-22 Blue)
Saturation Threshold	3×10^{-2} Amps/cm ²
Peak Emitted Wavelength	450 nanometers
Maximum Input Power Density	1 Watt/cm² CAUTION: Exceeding 1 Watt/cm ² input power may damage the phosphor coating.
Minimum Power Density for screen response	5×10^{-5} Watts/cm ²
Maximum Bakeout	Rugged: 200°C UHV: 350°C
Operating Vacuum Level	Rugged: Only to 10^{-8} torr, possible outgassing at lower end UHV: UHV range, compatible with better than 10^{-8} torr

- ▶ When using the phosphor screen detector, input power density to the screen must not exceed **1 Watt/cm²**. To preserve screen brightness, it is advisable to use the lowest power density that provides a clear spot.
CAUTION: Exceeding 1 Watt/cm² input power may damage the phosphor coating.

$$\text{Input Power Density} = \frac{\text{Beam Current} \times \text{Beam Energy}}{\text{Spot Size (area)}}$$

- ▶ **After installation, ensure that the screen is properly grounded.** If the screen is on conductive glass and is unmounted, then a grounded conductive contact must be affixed to the front of the screen.

For UHV PHOSPHOR SCREENS only:

- ▶ If applicable, remove the stainless steel protective cover before attempting to use.
- ▶ **CAUTION:** Use caution when handling the UHV phosphor screen as the coating is extremely delicate. **DO NOT TOUCH THE UHV PHOSPHOR COATING or damage will result.** **Banging or knocking the screen or its mount on a hard surface could cause the phosphor to flake off.**