



What Do You Need to Use the kSA 400?

The kSA 400 is an analytical RHEED system designed to extract real-time, quantitative information about the thin-film surface by proper analysis of the static or evolving diffraction pattern. In order to use the kSA 400 system, you will need to have the following:

1. High Energy Electron Gun. k-Space does not manufacture electron guns, although we work closely with Staib Instruments (www.staibinstruments.com), a leading manufacturer of high-brightness, high-stability electron guns. There are at least 10 RHEED electron gun manufacturers. Typical electron energies for RHEED range from 10 keV to 50 keV, with 15 keV being the most common energy for an electron gun. Typically purchase of an electron gun includes the gun itself, the power supply, a deflection unit, and cabling. The power supply and deflection units are typically 19" rack mount boxes.
2. Phosphor screen. The diffracted electrons impinge on a phosphor screen, much like how a television screen works. The phosphor used for RHEED typically luminesces in a green or blue tint. The screens are mounted in vacuum and typically are mounted within a 6" or 8" o.d. conflat flange. Note that k-Space sells high quality RHEED screens and screen holders (<http://www.k-space.com/products/accessories/>).
3. Vacuum deposition chamber. RHEED is typically used on vacuum chambers equipped with some type of thin-film deposition capability. Molecular-Beam Epitaxy (MBE) is the most common type of deposition for which RHEED is used, but other techniques including e-beam evaporation and sputtering can use RHEED as an analytical tool.

