

## PCD port Beam Blanking system

### Applications:

- Electron Beam Lithography
- Cathodoluminescence
- EBIC / Voltage Contrast
- EDX
- Electron acoustic microscopy

### Features:

- Integrated faraday cup
- 50nS rise time
- 1MHz maximum frequency
- Motorised plate insertion
- 5V TTL input
- RS-232 remote control
- Available for most JEOL and Hitachi SEMs

Beam Blanking is used to blank the SEM electron beam (switch the beam on and off), this functionality is required primarily for Electron Beam Lithography but also for EDX, CL or EBIC.

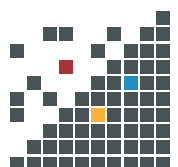
Many SEMs have an in-built beam blanking function which blanks the beam by using the column scan coils. While this method is suitable for some applications it generally only blanks the beam in a few milliseconds, if faster blanking speeds are required a separate beam blanker should be fitted.

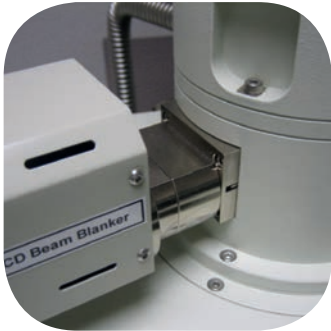
The Deben PCD Beam Blanker has been designed to provide FEG, LaB<sub>6</sub> and tungsten SEMs with the capability of blanking, pulsing or otherwise modulating the electron beam.

The blanking unit utilises the PCD port on the side of the column (opposite the final aperture) and will operate at up to 30kV with a rise time of 50nS. There is an integral faraday cup and probe current detector for an indication of probe current. A BNC connector is provided for connection to an optional probe current meter should a more accurate reading be required.

Blanking plates are made from cobalt gold coated phosphor bronze to ensure that normal operation of the SEM is not affected when the plates are inserted. Plates can either be positioned on the axis of the column or totally withdrawn when not required.

Length and separation of the plates have been chosen to give optimum blanking efficiency over beam voltages from 1kV to 30kV.





## Compatibility

The PCD Beam Blanker is available for most JEOL and Hitachi SEMs but please contact us to confirm that it will be compatible with your specific SEM.

This Beam Blanker is not available for any SEMs other than those from JEOL or Hitachi.

## Outline Specifications

- Blanking plate assembly to fit into PCD port directly under objective aperture
- Cobalt gold plated blanking plates with integrated faraday cup
- Motorised plate position adjustment with position memory
- Pulse drive amplifier (at plates) & power supply
- Digital probe current display, and probe current output on BNC connector for picoammeter
- 5V (TTL) blanking pulse input
- Maximum pulse frequency 1MHz
- 400V maximum deflection voltage
- Switching rise time ~50ns
- Maximum HT voltage 30kV
- Compact desktop controller for system control and status display
- RS-232 interface for remote control
- Supply voltage 100V (from SEM power supply only)

## Optional standalone probe current meter

- Ranges
  - 1.999pA accuracy +/- 5% f.s.
  - 1.999nA accuracy +/- 5% f.s.
  - 19.99nA accuracy +/- 2% f.s.
  - 199.9nA accuracy +/- 2% f.s.
  - 1.999µA accuracy +/- 2% f.s.
- Auto zero correction.
- Max error 5pA at 25°C.
- Overload: In excess of 100µA.
- Power: battery 4 x AA alkaline cells giving typically 10,000 hours operation (1.2 years)
- Size: 130mm(W) x 70mm(H) x 115mm(D)

