

# Electron Beam Induced Current Module

The EBIC module comprises a signal amplifier as well as an intuitive and easy to use control interface. The system is compatible with most commercially available SEM's and FIB's and the amplifier is connected to the microscope's video input.



Primary applications are open detection in integrated circuits, visualization of p-n junctions and localization of resistivity changes in via chains using the system to perform EBAC, EBIC, and RCI, respectively. Additionally, techniques such as EBIV and EBIRCH can be used.

## Applications

- Non-destructive failure analysis
- Open and short detection in integrated circuits
- Visualization of p-n junctions
- Localization of resistivity changes
- Visualization of grain boundaries in solar cells

## Operation modes

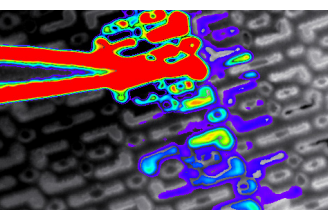
- EBIC - electron beam induced current
- EBAC - electron beam absorbed current
- RCI - resistive contrast imaging
- EBIV - electron beam induced voltage
- EBIRCH - electron beam induced resistivity change

## Technical specifications

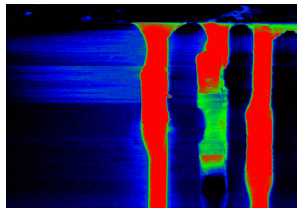
- Current measurement limit 100 fA
- Gain  $10^4$  to  $10^{12}$  V/A
- Bandwidth up to 10 MHz
- Video output 1 V / 50  $\Omega$  (customizable)
- External voltage input
- Large offset range
- AC and DC amplification modes
- Image inversion mode
- Input current compensation
- Selectable bandwidth filter
- Quantitative EBIC/EBAC

## Further information

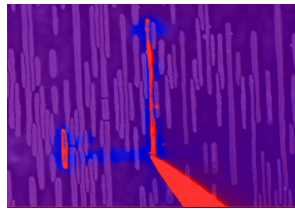
- Contact us at [info@kleindiek.com](mailto:info@kleindiek.com)
- Find your local agent at [www.kleindiek.com](http://www.kleindiek.com)



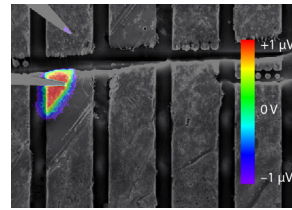
EBIC of 7 nm transistor wells



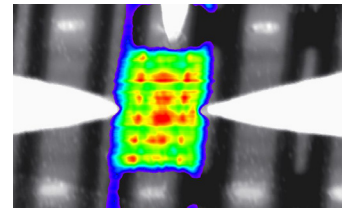
RCI for detecting opens



EBAC Analysis



EBIV experiment



EBIC used to visualize 5 nm FinFET