

GIF Continuum K3 Detector Options

Model 1069 options

The GIF Continuum® K3® is the industry-leading, direct detection platform for electron energy loss spectroscopy (EELS) and energy-filtered transmission electron microscopy (EFTEM) applications. Using the K3 independently as the primary detector or paired with the optional secondary scintillator detectors, this imaging filter resolves high-fidelity structures and spectra across a broad range of conditions. When combining the K3 with the Stela® hybrid-pixel camera, the advantage of electron counting is available for EELS and EFTEM over the entire 30 – 300 kV voltage range.



Ideal for low-dose imaging applications

- High sensitivity, large pixel count of the K3 detector is optimal for low-dose imaging and *in-situ* studies
- Resolves atomic structures with high fidelity even at low intensities (80 – 300 kV)
- Captures critical or unanticipated high-speed *in-situ* events in counting mode with the exclusive LookBack™ feature

Unparalleled spectroscopy with CountedEELS modes

- Delivers the sharpest edges over the broadest energy range
- Utilizes K3 electron counting to eliminate noise sources to detect the weakest signals possible
- DualEELS™ ensures you have both low- and core-loss that are key for modern EELS quantification

Extend electron counting to low kV with Stela

- Extends CountedEELS and EFTEM below 80 kV
- Optimal for energy-filtered diffraction, MicroED, and 4D STEM
- Captures weak and intense reflections with the highest dynamic range

Productivity that you expect

- One-button tuning and alignment on all detectors
- Flexible yet straightforward STEM-EELS spectrum imaging with Live Mapping
- Instant visualization and experiment feedback at the full speed of the detector

Full DigitalMicrograph integration

- One-stop analysis platform for all TEM/STEM applications reduces training time and cost
- Powerful, multi-dimensional data analysis and visualization tools allow users to delve into and explore complex data sets effortlessly
- Native support for DigitalMicrograph® scripting and Python programming to customize your analysis



Figure 1. Stela – the only fully integrated hybrid-pixel electron detector for DigitalMicrograph – is now available on the GIF Continuum K3. The DECTRIS powered Stela paired with the K3 gives the advantage of electron counting for EELS and EFTEM over the full 30 – 300 kV voltage range.

Specifications

	Primary Detector	Secondary Detector Options			
	K3	1069.FXUP	1069.EXUP	1069.LVUP	1069.STUP
Operating range (kV)	80 – 300	40 – 300	30 – 300	30 – 60*	30 – 200*
EFTEM imaging size (pixel x pixel)	6912 x 6912 [super resolution]		2048 x 2048		512 x 512
EELS energy channels (pixels)	3456		2048		1024
$\omega - q$ EELS (pixel x pixel)	3456 x 2048		2048 x 1024		1024 x 512
Detector technology	CMOS direct detection counted and linear	CMOS high-speed XCR™ fiber / scintillator		CMOS high brightness XCR fiber / scintillator	Hybrid-pixel direct detection counted
Image frame rate (fps)					
Full-frame to memory	75		90		2000
Sub-area (<i>in-situ</i> option)	3500		180		16000
Spectroscopy	>2900	8000		2600	>8000

* X-ray safe to 300 kV

** DualEELS and 100 ns blaster are standard for all detector options

*** *In-situ* and 4D STEM modes are optional for all detector options

