

C+ Series EBSD Detectors

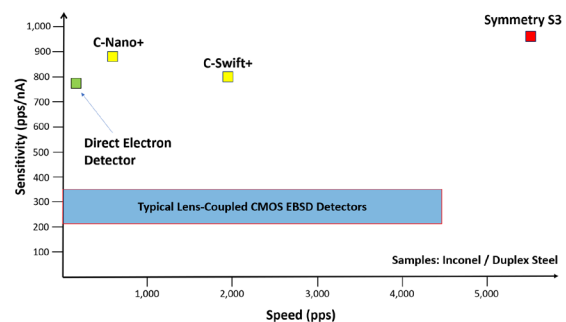


Entry Level Detectors with High-End Performance

The C+ series EBSD detectors, the **C-Nano+** and the **C-Swift+**, are 2nd generation entry-level detectors designed for every type of EBSD application. Both detectors use a high-performance CMOS sensor developed specifically for EBSD and benefit from a range of unique design features, delivering a balance between high speed and high-quality materials characterisation.

- Unique proximity sensors (patent pending) that prevent collisions and minimise downtime
- Optional integrated 5-diode forescatter detector (FSD) imaging system
- Unique lens-free fibre-optic coupling delivering market-leading sensitivity
- Guaranteed sub-pixel distortion for high precision EBSD work (including HR-EBSD)

The **C-Nano+** and **C-Swift+** both benefit from fibre-optic coupling between the phosphor screen and the CMOS sensor. Compared to conventional lens-based EBSD detectors, as shown below, this results in a 2-3 x improvement in sensitivity. Higher sensitivity benefits the detector performance for all analyses, enabling high speed measurements using low beam currents and opening new opportunities for research on beam-sensitive materials.



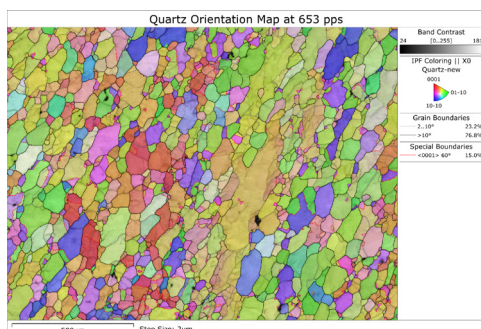
The relationship between speed and sensitivity (defined in patterns per second per nA beam current) for the C+ series detectors, compared to the Symmetry S3, commercial direct electron EBSD detectors and lens-coupled CMOS detectors

C-Nano+

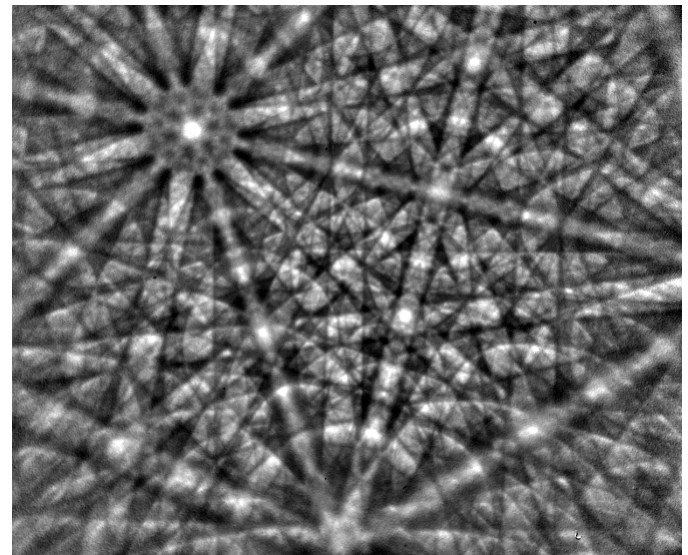


The **C-Nano+** is an outstanding entry-level EBSD detector that delivers megapixel resolution EBSD patterns coupled with guaranteed analysis speeds in excess of 600 patterns per second (pps).

This, in combination with the high sensitivity resulting from its fibre-optics, makes the **C-Nano+** ideal for high precision analyses of challenging materials, including ceramics and minerals.



Example orientation map of a quartz (SiO₂) mylonite sample collected at 653 pps using the C-Nano+ detector



Example full resolution EBSD pattern (1244 x 1024 pixels) collected from a W sample using the C-Nano+ detector

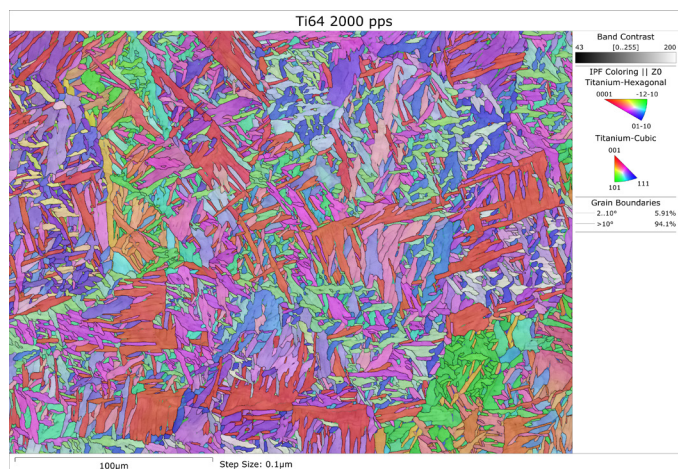
- Megapixel 1244 x 1024 resolution at > 80 pps – ideal for HR EBSD studies and for detailed strain analysis and phase identification
- Guaranteed maximum analysis speed exceeding 600 pps at 312 x 256 pixel resolution using only 3 nA beam current (on steel / Ni)

C-Swift+

The **C-Swift+** EBSD detector is for customers demanding exceptional all-round performance at an entry-level budget. Capable of high-quality EBSD analyses at speeds in excess of 2000 indexed patterns per second, yet benefiting from the high sensitivity delivered by fibre-optics, the **C-Swift+** is the ideal detector for any routine materials characterisation task.



- 622 x 512 resolution EBSPs at speeds > 250 pps using beam currents as low as 300 pA – ideal for characterising more challenging materials
- Guaranteed maximum analysis speeds exceeding 2000 pps using only 8 nA beam current (on steel / Ni)
- 156 x 128 pixel EBSP resolution at the highest speeds provides optimum pattern detail for reliable phase separation and excellent orientation precision



Orientation map of a 2-phase additively manufactured Ti64 alloy collected using the C-Swift+ EBSD detector at 2000 pps

C+ Series EBSD Detector Specifications		
	C-Nano+	C-Swift+
Resolution	Max 1244 x 1024	Max 622 x 512
Speed	> 600 pps (at 312 x 256 pixel resolution)	> 2000 pps (at 156 x 128 pixel resolution)
Maximum Sensitivity	> 900 pps / nA	> 800 pps / nA
Optics	Lens-free fibre-optic coupling	
CMOS Sensor	Bespoke CMOS sensor developed and optimised for EBSD	
Distortion	Guaranteed < 1 pixel	
Phosphor Screen	High sensitivity all-round phosphor, matching shape of CMOS sensor – user replaceable	
Collision Protection	Proximity sensor collision avoidance system (patent pending)	
Insertion	Fully motorised, high speed and high precision insertion / retraction	
Interface	Bellows-type for high vacuum integrity	
FSD System	Optional 5 diode forescatter detector (FSD) system	
High T Screen	Optional, high-sensitivity high temperature screen with optical interference infra-red filter	
Handset	Optional – insertion control	

Visit nano.oxinst.com/EBSD

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