

Pulse system

ID-04420PULSE PULSE STEM Digital Processor (2 ch)

ID-04440PULSE PULSE STEM Digital Processor (4 ch)

The Pulse system is a modular and retrofittable upgrade to improve the speed and precision of scanning transmission electron microscopy signals. At its core, it streams the analog signal from an electron detector, including those using scintillator based technology, identifies individual electron events and returns a fully digital output. The result is images with calibrated units of individual electrons with a true zero background level and pure Poisson noise.



Features

- Connects to any acquisition system accepting TTL digital inputs.
- Produces quantifiable images with true zero dark level and pure Poisson noise.
- Acts alongside existing detectors for simultaneous acquisition of images, including spectroscopy.
- Features two channels for electron counting on two separate detectors.

Specifications

	2 Channel	4 Channel
No. channels	2 in, 2 out	4 in, 4 out
Connections	BNC	
Input range	Max. ± 10 V	
Input resolution	14-bit	
Input impedance	50 Ω	
Sample rate	125 Msps (per channel)	
Output voltage	3.3 V CMOS, 5 V TTL	
Output frequency	Max. 62.5 MHz	
Power	5 V (USB-C or barrel jack)	
Control interface	RJ45 ethernet	

Applicable model: JEM-ARM300F2, JEM-ARM200F (CFEG), JEM-F200 (CFEG), JEM-3300

Please contact JEOL regarding models other than those mentioned above.

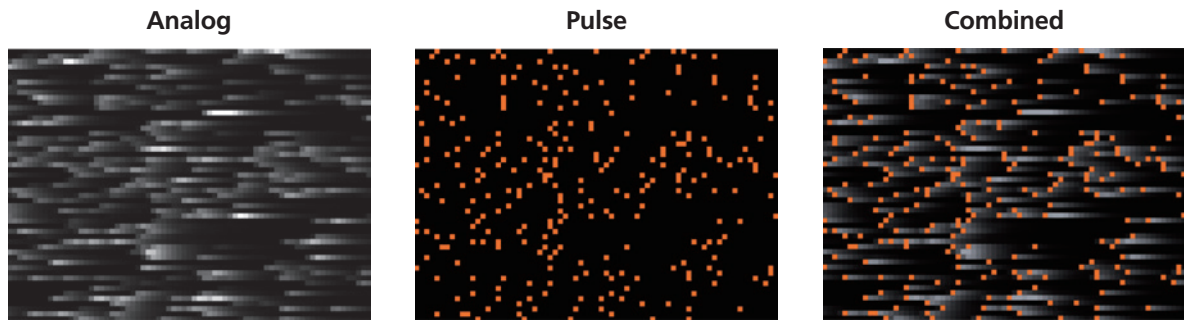
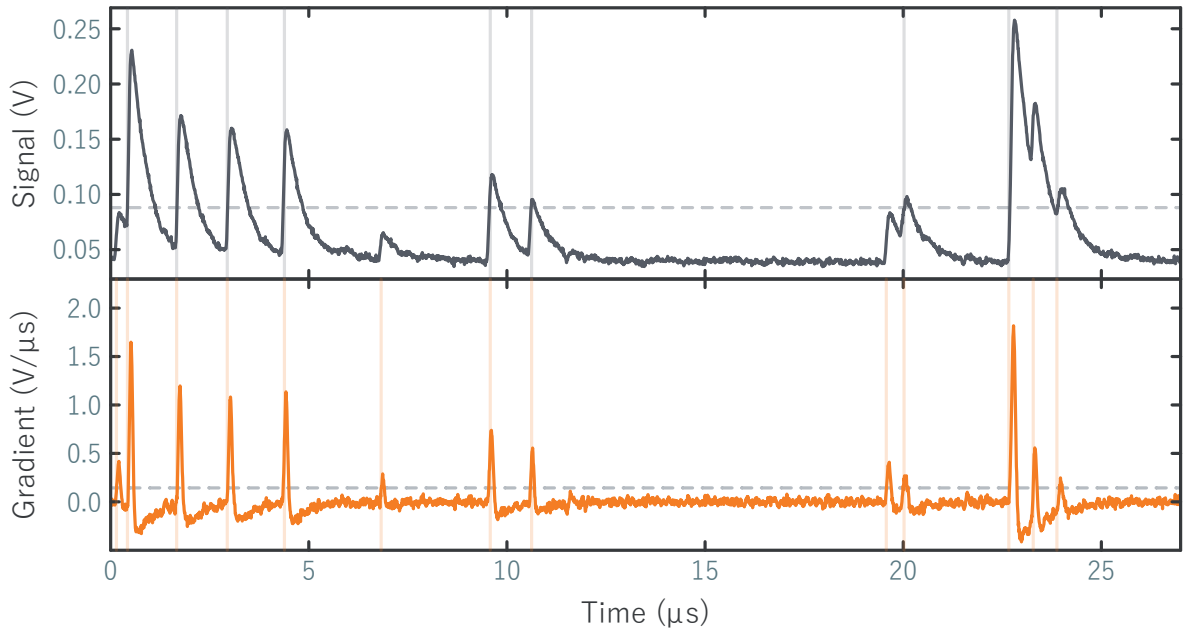


Figure 1 Raw data stream from a scintillator detector (black line) and differentiated signal (orange line). Horizontal dashed line shows an example threshold with vertical lines showing detected electrons. Bottom shows high-speed, low-dose images from analog and Pulse detection, showing improved temporal response when using Pulse.

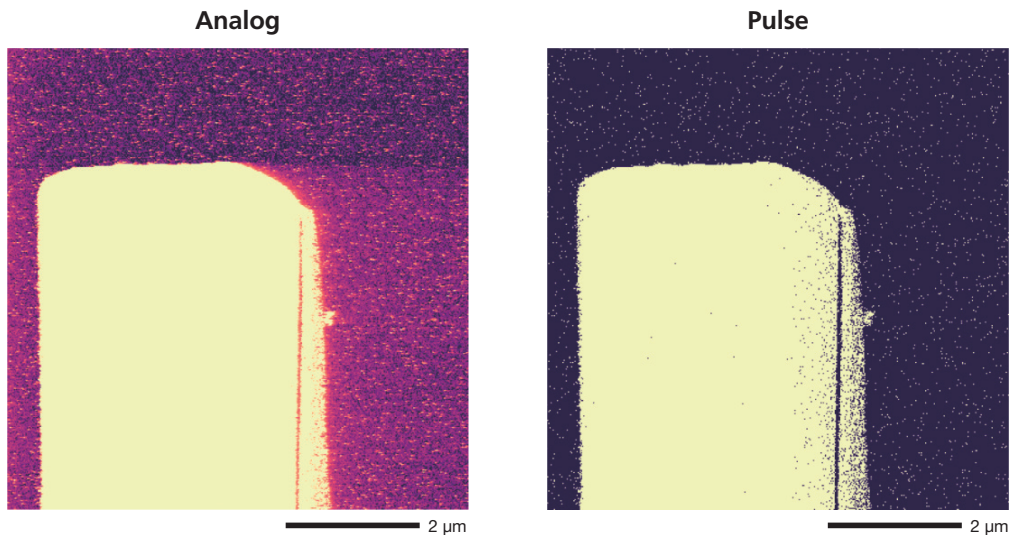


Figure 2 Low magnification image of a FIB lamella acquired using the analog (left) and Pulse (right) signals. Slow streaking into the vacuum can be observed in the analog signal.

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Specifications subject to change without notice.

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