KINETIX CMOS CAMERA

KEY FEATURES

- Extreme speed: 498 fps full frame
- Large 29.4 mm sensor
- 95% quantum efficiency
- Ultra-low 0.7 e⁻ read noise
- Balanced 6.5 μm pixels
- 10 megapixel sensor
- Superior background quality
- High dynamic range
- Powerful on-board FPGA
- processor for advanced features
- C-, F- or T-mount compatible

TYPICAL APPLICATIONS

- Light sheet microscopy
- Voltage and calcium imaging
- Single-molecule imaging (FRET, TIRF, SMLM)
- Super resolution microscopy
- Single molecule imaging
- Spinning disk confocal imaging
- Live cell imaging
- Fluorescence imaging

RELIABILITY

- Three-year warranty
- Extended warranty available

The Next Generation in CMOS Cameras

The groundbreaking Kinetix CMOS camera delivers extreme imaging speeds across a very large field of view, all at near-perfect 95% quantum efficiency and with sub-electron read noise. With these impressive features, the Kinetix stands as the ultimate solution for scientific imaging.

Faster, larger and more sensitive than typical CMOS cameras, the Kinetix empowers you to capture more than ever before, advancing your imaging and research endeavors. Whether you're imaging fast dynamic voltage signals, capturing entire organs and tissues, peering into space, or studying a small handful of molecules, the Kinetix will image without compromise.
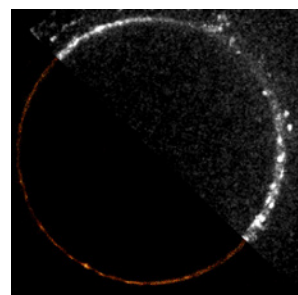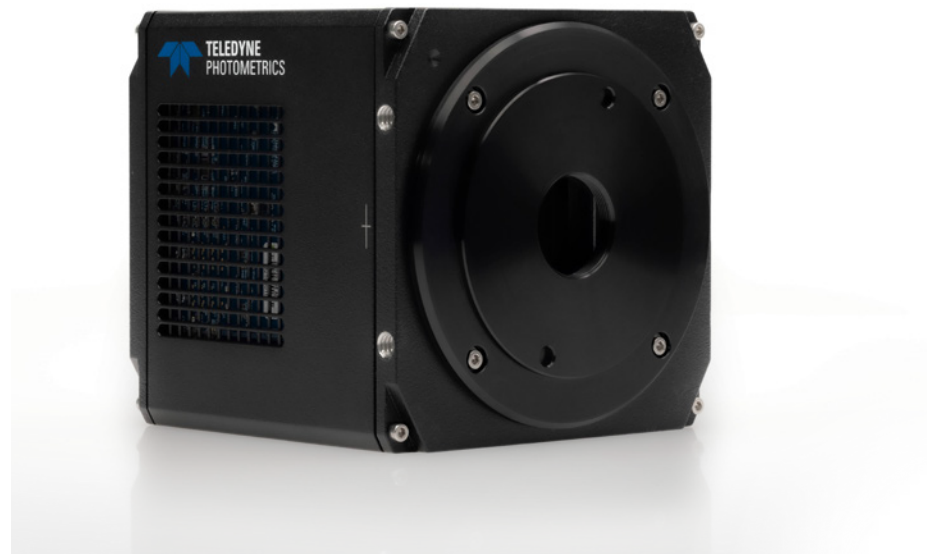
STORM Super Resolution
Dr. Alex Furstenberg
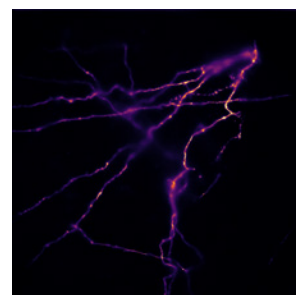
High Speed Voltage Imaging
Prof. Kirill Volynski
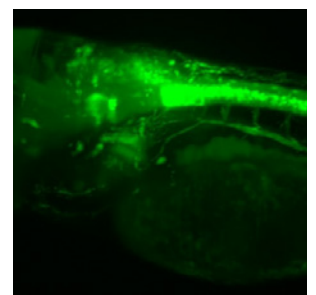
Light Sheet Microscopy
Prof. Jochen Guck

KINETIX SPECIFICATIONS

SPECIFICATIONS	Camera Performance
Sensor	GPixel GSense GSENSE6510 CMOS
Active Array Size	3200 x 3200 (10.24 megapixel)
Pixel Area	6.5 x 6.5 µm (42.25 µm²)
Sensor Area	20.8 mm x 20.8 mm (29.4 mm diagonal)
Peak QE%	95%
Readout Modes	Rolling shutter
	Effective global shutter
	Programmable scan mode (PCIe only)
Digital Binning	Symmetrical and asymmetrical binning up to 4 x 4 pixels
Linearity	> 99%
Cooling Options	Air cooled or liquid cooled (0 °C)
Digital Interfaces	USB 3.2gen2 10 Gbps
	PCI-Express Gen 3
Lens Interfaces	T-mount	F-mount	C-mount (swappable mounts)
Mounting Points	8 x 1/4"-20 UNC
Camera Weight	1.8 kg, 4 lbs

CAMERA MODES

SPECIFICATIONS	Dynamic Range	Speed	Sensitivity	Sub-Electron
Bit Depth	16-bit	8-bit	12-bit	16-bit
Frame Rate (Full Frame)	83 fps	498 fps	88 fps	5.2 fps
Read Noise	1.6 e⁻	2.0 e⁻	1.2 e⁻	0.7 e⁻
Cooling	0 °C	0 °C	0 °C	0 °C
Line Time	3.749 µsec/line	0.625 µsec/line	3.5312 µsec/line	60.1 µsec/line
Dark Current	1.27 e⁻/p/sec	3.0 e⁻/p/sec	1.03 e⁻/p/sec	0.477 e⁻/p/sec
Conversation Gain	0.23 e⁻/count	0.85e⁻/count	0.25 e⁻/count	0.015 e⁻/count
Full Well Capacity	15000 e⁻	200 e⁻	1000 e⁻	1000 e⁻

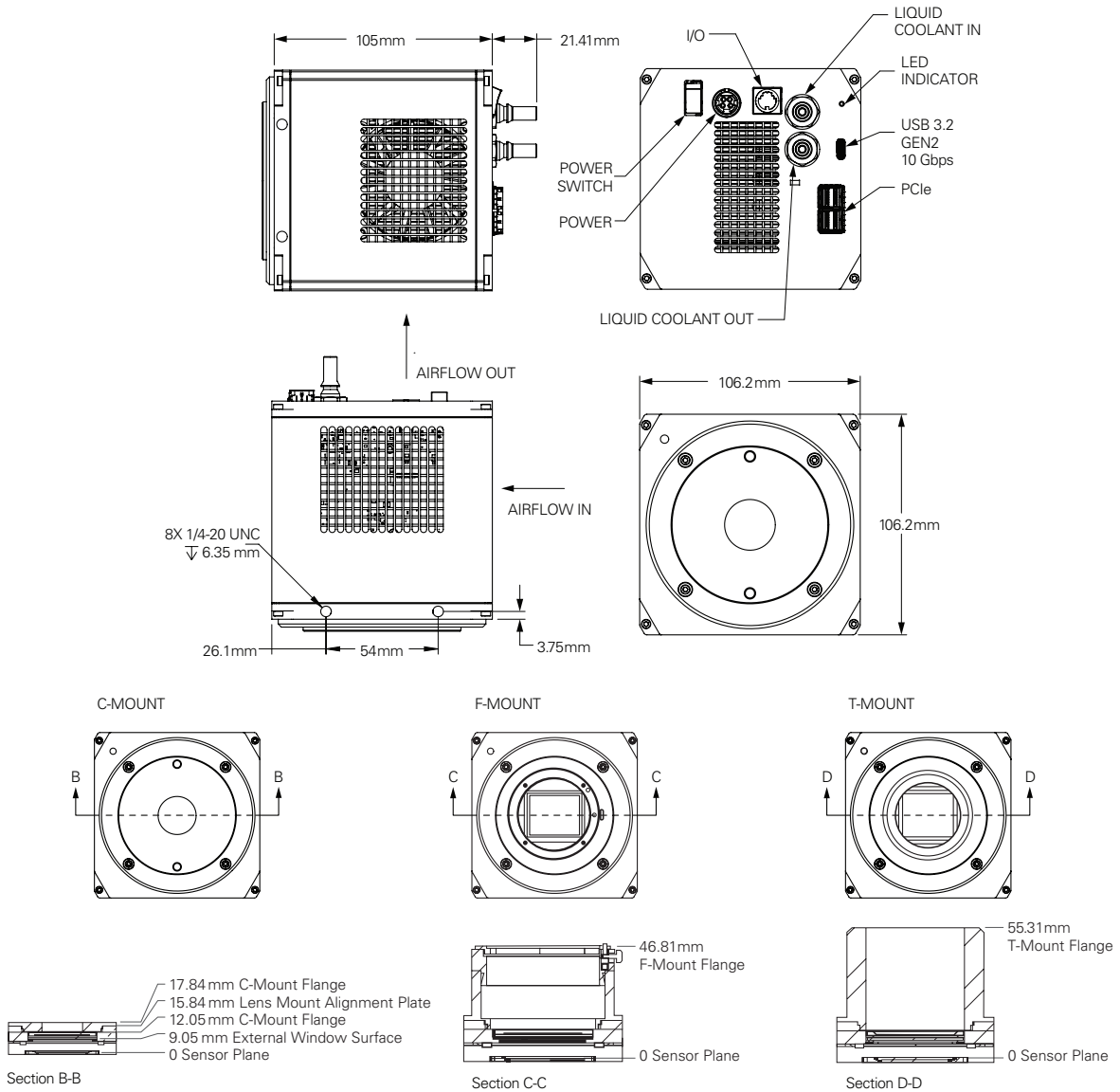| TRIGGERING MODE	Function
INPUT TRIGGER MODES	
Trigger First	Sequence triggered on first rising edge
Level Trigger	Exposure time is controlled by length of high trigger signal
Edge Trigger	Each frame in sequence triggered by rising edge
SMART Streaming	Fast iteration through multiple exposure times, works with the four trigger out cables to control multiple light sources at multiple exposure times
OUTPUT TRIGGER MODES	
Any Row	Expose signal is high while any row is acquiring data
First Row	Expose signal is high while first row is acquiring data
Line Output	
EFFECTIVE GLOBAL SHUTTER TRIGGER MODES	
All Row	Expose out signal high for exposure time, maintains exposure time but drops frame rate
Rolling Shutter	Expose out signal high for exposure time - readout time. Keeps frame rate but drops exposure time.
OUTPUT TRIGGER SIGNALS	
Expose Out (up to four signals), Read Out, Trigger Ready	

KINETIX QE CURVE
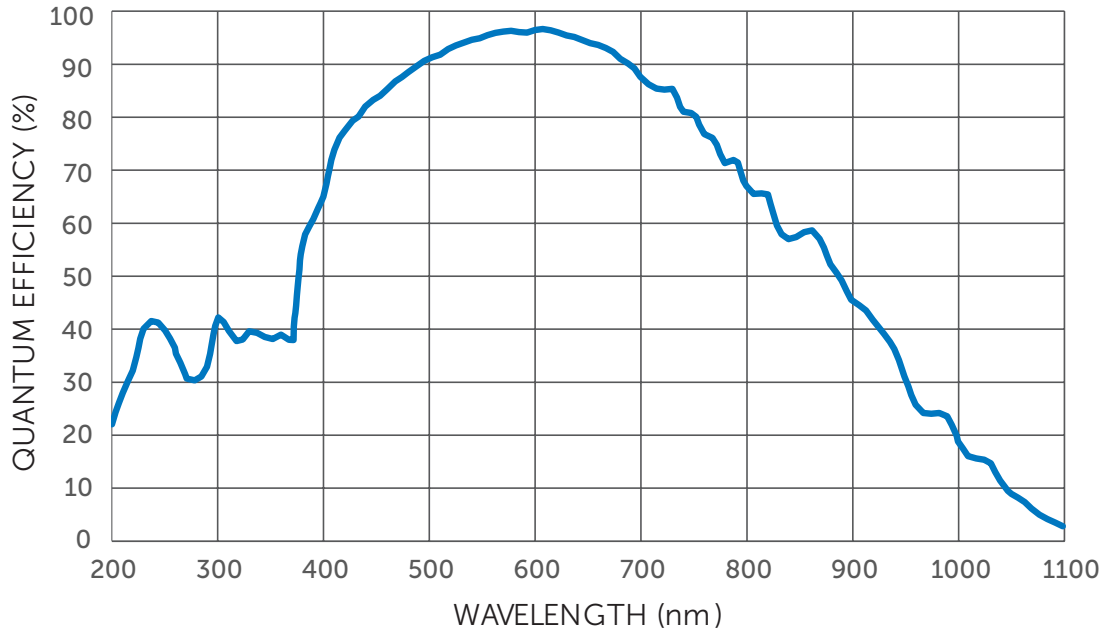
KINETIX SPEED TABLE

FRAME RATES (HZ)								
ARRAY SIZE	DYNAMIC RANGE		SPEED		SENSITIVITY		SUB-ELECTRON	
	PCIe	USB	PCIe	USB	PCIe	USB	PCIe	USB
3200 x 3200	83	39	498	79	88	52	5.2	5.2
3200 x 2304	115	54	691	110	122	72	7.2	7.2
3200 x 2048	130	61	778	122	138	81	8.1	8.1
3200 x 1600	166	78	996	158	176	104	10.4	10.4

LINE SCAN FRAME RATES* (HZ)				
ARRAY SIZE	DYNAMIC RANGE	SPEED	SENSITIVITY	SUB-ELECTRON
3200 x 64	4,100	21,100	4,300	200
3200 x 32	8,100	36,400	8,300	500
3200 x 16	15,700	57,100	15,700	800
3200 x 8	29,600	80,000	28,300	1,400
3200 x 4	53,300	99,400	47,200	2,100
3200 x 2	88,900	107,200	77,200	2,700

*Based on measurements using a PCIe interface and a Kinetix on firmware 30.32.1

KINETIX DIMENSIONAL OUTLINES (UNIT: MM)

105mm 21.41mm

I/O
LIQUID COOLANT IN
LED INDICATOR
USB 3.2 GEN2 10 Gbps
PCIe
POWER SWITCH
POWER
LIQUID COOLANT OUT

AIRFLOW OUT

AIRFLOW IN

8X 1/4-20 UNC
6.35 mm

26.1mm 54mm 3.75mm

106.2mm

106.2mm

C-MOUNT

B — B

F-MOUNT

C — C

T-MOUNT

D — D

46.81mm F-Mount Flange
0 Sensor Plane
Section C-C

55.31mm T-Mount Flange
0 Sensor Plane
Section D-D

17.84 mm C-Mount Flange
15.84 mm Lens Mount Alignment Plate
12.05 mm C-Mount Flange
9.05 mm External Window Surface
0 Sensor Plane

Section B-B

KINETIX ACCESSORIES

ACCESSORIES (INCLUDED)	
PCIe Interface Card	C-, T-, and F-mount faceplates
PCIe data cable, 3m (x2)	Power supply (12V/10A DC)
USB C-C data cable, 3m	PVCAM drivers/software
USB A-C data cable, 0.9m	Quick installation guide
BNC trigger cable	Performance and gain test data

FOR MORE INFORMATION REACH OUT ONLINE:

CONTACT US: photometrics.com/contact

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CONTACT SUPPORT: photometrics.com/contact/support

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