KURO® sCMOS CAMERA

KEY FEATURES

- Backside sensor illumination, resulting in 95% peak QE
- High UV sensitivity
- Large 11 µm pixels to maximize light collection
- Low read noise, easily detects faint signals
- Multiple sensor options: KURO® 1200B and KURO® 2048B camera models
- Large full well capacity, handles intense signal levels
- High dynamic range, measures bright and dim signals within the same image

TYPICAL APPLICATIONS

- Hyperspectral imaging
- Astronomy
- Cold-atom imaging
- Quantum imaging
- Fluorescence spectroscopy
- High-speed spectroscopy
- Fluorescence microscopy

RELIABILITY

- One-year warranty

World's First Back-Illuminated sCMOS Camera

The KURO® camera was the first back-illuminated sCMOS camera and offers extreme sensitivity thanks to 95% quantum efficiency, large 11 µm pixels, and low noise. The KURO camera also operates at high frame rates across a large sensor, consistently outperforming EMCCD cameras.

The back-illumination and large 11 µm pixels result in extreme sensitivity, allowing fainter signals to be detected and providing the flexibility to increase frame rates or reduce illumination to minimize photodamage. Yet, the KURO camera maintains the same high frame rates, large field of view, and extremely low read noise that make sCMOS so popular for scientific imaging.

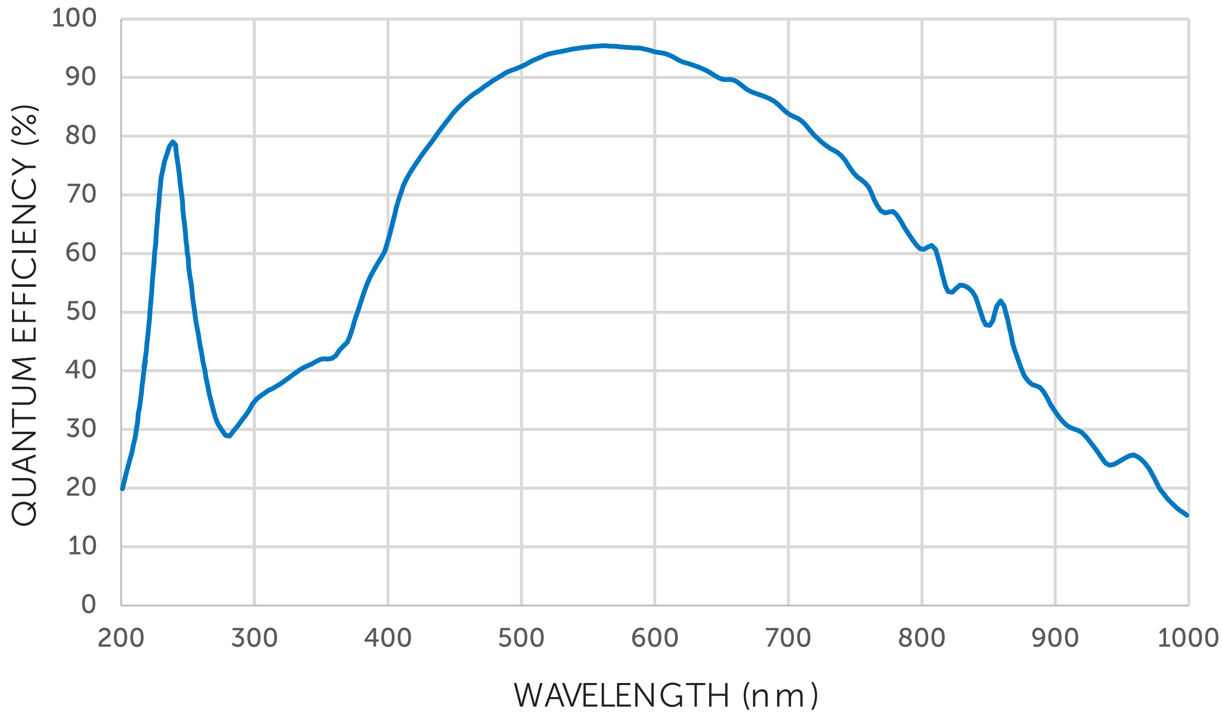
KURO SPECIFICATIONS

SPECIFICATIONS	KURO 1200B	KURO 2048B
Sensor	GPixel GSense 144 BSI CMOS Gen IV, Grade 1 in imaging area	GPixel GSense 400 BSI CMOS Gen IV, Grade 1 in imaging area
Active Array Size	1200 x 1200 pixels (1.44 Megapixel)	2048 x 2048 pixels (4.1 Megapixel)
Pixel Area	11 µm x 11 µm (121 µm^2)	
Sensor Area	13.2 mm x 13.2 mm (18.7 mm diagonal)	22.53 mm x 22.53 mm (31.86 mm diagonal)
Peak QE%	> 95%	
Spectral Response	200 – 1100 nm	
Full Well Capacity	80,000 e$^-$	
Read Noise	1.3 e$^-$ (median), 1.5 e$^-$ (RMS)	
Dark Current	1.9 e$^-$/p/s @ -10 °C, 0.7 ev/p/s @ -25 °C	
Cooling Options	-10 °C (air), -25 °C (with liquid assist)	
Lens Mounts	C-Mount (standard) C-to-F-Mount (optional) C-to-Spectrometer (optional)	F-Mount (standard) C-to-F-Mount (optional) C-Mount (optional)
Output Interfaces	USB 3.0	
Bit Depth	12-bit, 16-bit	
Readout Modes	Rolling Shutter Effective Global Shutter	
Max Exposure Time	10 sec	30 ms
Window Material	Single window in optical path; UV-grade fused silica	
Operating Temperature Range	0 °C to -30 °C, 80% relative humidity non-condensing	
Camera Weight	3.8 lbs, 1.7 kg	
Camera Dimensions	156.2 x 102.6 x 102.6 mm (L x W x D)	185.4 x 102.6 x 102.6 mm (L x W x D)
Software Supported	Teledyne Princeton Instruments LightField® software (optional) LabVIEW® (National Instruments) and MATLAB® (Mathworks) supported via automation	
SDK	PICam (available for free)	
Trigger Modes	Start on single trigger; readout per trigger	
TTL Output Signals	EXPOSE (first row, any row, all rows); READOUT; READY; SHUTTER OUT	

KURO SPEED TABLES

KURO 1200B			KURO 2048B		
REGION SIZE	12-BIT	16-BIT	REGION SIZE	12-BIT	16-BIT
1200 x 1200	82	41	2048 x 2048	47	23
1200 x 512	190	96	2048 x 1024	95	47
1200 x 256	384	192	2048 x 512	190	95
1200 x 128	760	384	2048 x 256	380	190
1200 x 64	1470	760	2048 x 128	760	380
1200 x 32	2860	1470	2048 x 64	1520	760
1200 x 16	4420	2560	2048 x 32	N/A	1470

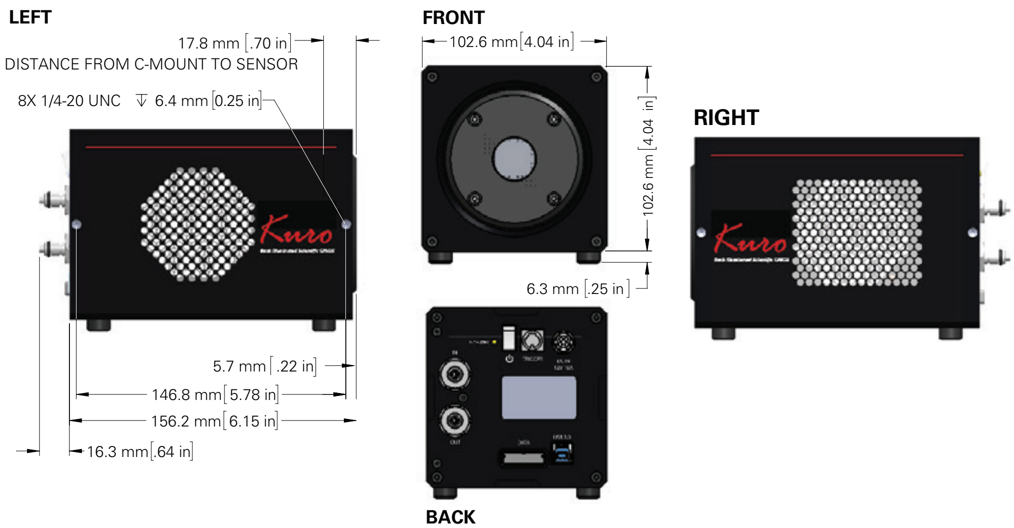
KURO QE CURVE



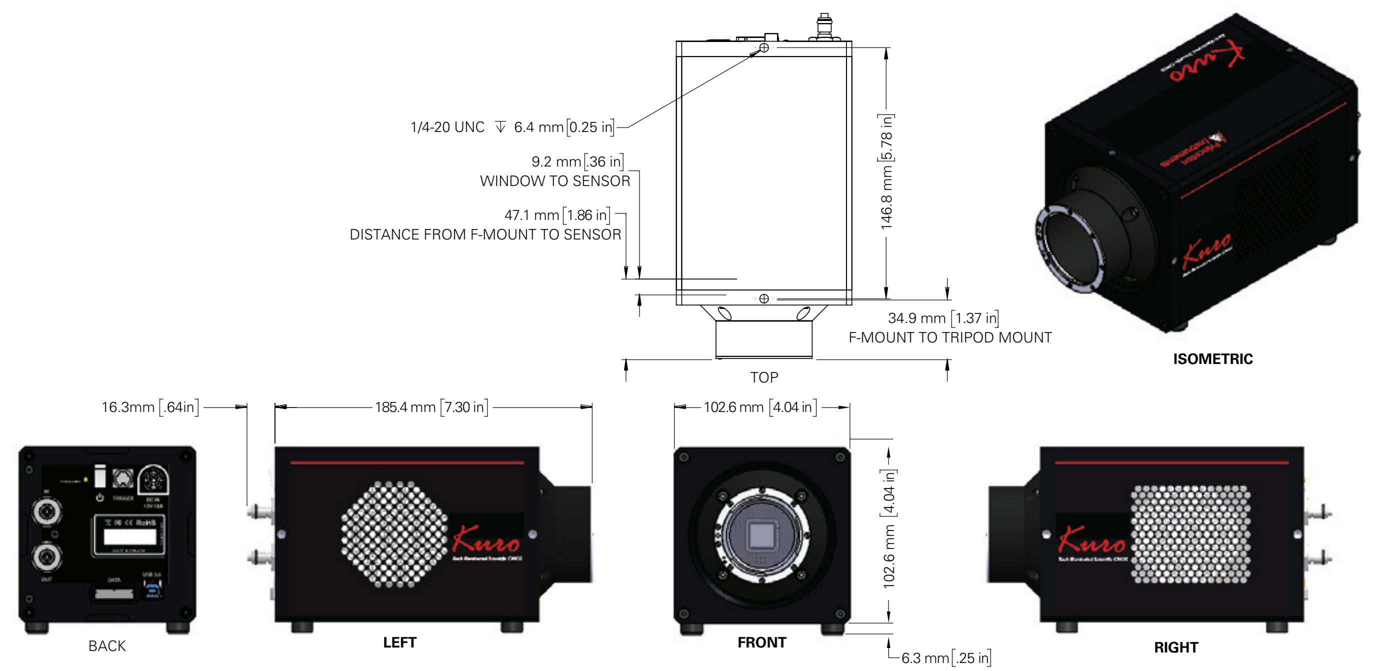
KURO ACCESSORIES

ACCESSORIES (Included)	
USB 3.0 cable	PICAM drivers/software
I/O breakout cable (BNC) for hardware triggering	Quick start guide
Power supply (12V/10A DC)	Performance and gain test data

KURO 1200B DIMENSIONAL OUTLINES (Unit: mm)



KURO 2048B DIMENSIONAL OUTLINES (Unit: mm)



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Specifications in this datasheet are subject to change. Refer to the Teledyne Princeton Instruments website for most current specifications.

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