



Overview of Kepler Series Cameras

Higher Speeds, More Channels, New Sensors

One Giant Leap Forward

Kepler is FLI's new series of cooled cameras, providing higher throughput, more channels, and a variety of new sensors, including scientific CMOS.

Scientific CMOS Cameras

Kepler's first release, the KL400, features a high quantum efficiency (95%) 2K x 2K back-illuminated CMOS sensor with read noise as low as 1.5 electrons. Our KL2020 uses a 2K x 2K front-illuminated sensor with frame rates as high as 376 fps. The large format KL4040 has a 4K x 4K high-QE front illuminated sensor with 9 micron pixels capable of 24 frames per second with only 3.7 electrons of read noise.

Higher Speeds

The extremely high bandwidth of Kepler's USB3 and optional QSFP (fiber) interfaces make it possible to push up speeds on sensors already supported by FLI, such as increasing the frame rate of the KAI-29052 by a factor of 10.

More Channels

Kepler currently supports up to 35 channel readout, greatly increasing potential throughput, as well as providing support for sensors like the ON Semi KAI-47051.

New Generation EMCCDs

Coming soon - Interline EMCCDs! Global shutter, intra-scene switchable gain, wide dynamic range and ultra-low read noise. The best of both worlds - ON Semi EMCCDs capture bright and faint objects in one image.

Increased Modularity

The majority of FLI cameras are exported; to minimize shipping costs, Kepler's shutter, fans, and digital board have all been designed to be user-replaceable.



KL400 Shown with Optional 45mm Shutter

Camera Applications:

- Orbital Debris Detection
- Photocell Inspection
- TEM

PRELIMINARY Specifications

Kepler Model	KL400	KL4040	KL2020
Sensor Type	Front and back illuminated	Front illuminated	Front and back illuminated
Resolution	2048 x 2048	4096 x 4096	2048 x 2048
Pixel Size	11 x 11 microns	9 x 9 microns	6.5 x 6.5 microns
Imaging Area	22.5 x 22.5 mm	36.9 x 36.9 mm	13.3 x 13.3 mm
Sensor Diagonal	31.9 mm	52.1 mm	18.8 mm
Maximum Frame Rate	48 fps (24 fps HDR)	48 fps (24 fps HDR)	74 fps (47 fps R-HDR)
Read Noise (e-) HDR	1.5 (FI) / 1.6 (BI)	3.7 e-	1.2 e- (Rolling)
Full Well Capacity (e-)	120000 (FI) ; 90000 (BI)	70000 e-	54000 e- (R HDR)
Dynamic Range	96 dB HDR	86 dB HDR	90 dB (R HDR)
Shutter	Rolling	Rolling; Rolling with Global Reset	Rolling; Rolling with Global Reset
Peak QE	58% (FI) / 94% (BI)	74% (CMT)	62% (FI) / 94% (BI)
Cooling	60°C Below Ambient	55°C Below Ambient	60°C Below Ambient
Dark Current	0.4 eps at -20C	0.5 eps at -30C	0.2 eps at -20C

Quality. Cooled. Cameras.

Finger Lakes Instrumentation LLC
 www.flicamera.com · 1250 Rochester St. · Lima NY 14485 USA · 585-624-3760

©2017 Finger Lakes Instrumentation LLC