

# FAST-IR Family



*HIGH-SPEED THERMAL IMAGING*

## KEY FEATURES



**ULTRAHIGH FRAME RATE**



**HIGH-SPEED INTERNAL MEMORY**



**HIGH SENSITIVITY**



**ADVANCED CALIBRATION**

Telops FAST-IR Family offers scientific infrared camera systems optimized for high-speed image acquisition. Featuring market-leading frame rate capabilities and a wide range of image size and spatial resolution capabilities, the FAST-IR series are ideally configured to capture even the most challenging high-speed thermal events.



## SHORT WAVE SERIES

SPECIFICATIONS	FAST S1K	FAST S2K	FAST S800
Detector Type	InGaAs	InGaAs	InGaAs
Detector Format	640 x 512 pixels	640 x 512 pixels	640 x 512 pixels
Spectral Range	0.9 - 1.7 $\mu\text{m}$	0.9 - 1.7 $\mu\text{m}$	0.9 - 1.7 $\mu\text{m}$
Detector Pitch	20 $\mu\text{m}$	20 $\mu\text{m}$	20 $\mu\text{m}$
Optical Aperture	F/4	-	-
Max. Frame Rate (Full Window)	1 000 Hz	1 730 Hz	865 Hz
Max. Frame Rate (Subwindow)	103,000 Hz @ 64 x 8	150,000 Hz @ 32 x 4	33,000 Hz @ 32 x 4
Lens Mount	M42	C-Mount	C-Mount

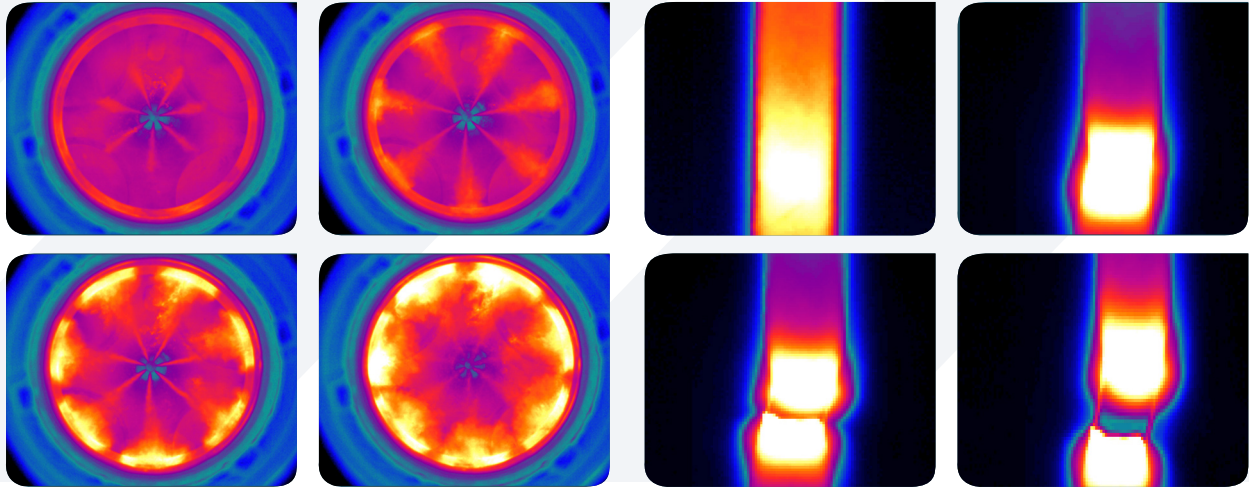
## MIDWAVE SERIES

SPECIFICATIONS	FAST M3k	FAST M2k	FAST M2k UD
Detector Type	Cooled InSb	Cooled InSb	Cooled InSb
Detector Format	320 x 256 pixels	320 x 256 pixels	640 x 512 pixels
Spectral Range	1.5 – 5.4 $\mu\text{m}$ (3.0 – 5.4 $\mu\text{m}$ optional)	1.5 – 5.4 $\mu\text{m}$ (3.0 – 5.4 $\mu\text{m}$ optional)	1.5 – 5.4 $\mu\text{m}$ (3.0 – 5.4 $\mu\text{m}$ optional)
Detector Pitch	30 $\mu\text{m}$	30 $\mu\text{m}$	25 $\mu\text{m}$
Optical Aperture	F/2.5	F/2.5	F/2.5
Max. Frame Rate (Full Window)	3 100 Hz	1 910 Hz	1 500 Hz
Max. Frame Rate (Subwindow)	100 000 Hz @ 64 x 4	90 000 Hz @ 64 x 4	42 000 Hz @ 64 x 8
Typical NETD	25 mK	25 mK	$\leq$ 23 mK
Minimum Exposure Time	1 $\mu\text{s}$ to full frame rate	1 $\mu\text{s}$ to full frame rate	0.5 $\mu\text{s}$ to full frame rate
Lens Mount	Bayonet	Bayonet	Threaded

## MIDWAVE SERIES

SPECIFICATIONS	FAST M1k	FAST M350
Detector Type	Cooled InSb	Cooled InSb
Detector Format	640 x 512 pixels	640 x 512 pixels
Spectral Range	1.5 – 5.4 $\mu\text{m}$ (3.0 – 5.4 $\mu\text{m}$ optional)	1.5 – 5.4 $\mu\text{m}$ (3.0 – 5.4 $\mu\text{m}$ optional)
Detector Pitch	25 $\mu\text{m}$	15 $\mu\text{m}$
Optical Aperture	F/2.5	F/3
Max. Frame Rate (Full Window)	1 012 Hz	355 Hz
Max. Frame Rate (Subwindow)	40 000 Hz @ 64 x 8	4 980 Hz @ 132 x 4
Typical NETD	25 mK	20 mK
Minimum Exposure Time	0.27 $\mu\text{s}$ to full frame rate	0.5 $\mu\text{s}$ to full frame rate
Lens Mount	Threaded	Bayonet

## EXAMPLES OF TYPICAL USES



Observation of Fuel Injection

Tensile Testing of a Steel Rod

## VERY LONGWAVE SERIES

SPECIFICATIONS	FAST V1k*	FAST V500*	FAST V350*	FAST L200
Detector Type	Cooled SLS	Cooled SLS	Cooled SLS	Cooled InSb
Detector Format	640 x 512 pixels	640 x 512 pixels	320 x 256 pixels	640 x 512 pixels
Spectral Range	7.5 – 11.5 $\mu\text{m}$	7.5 – 11.5 $\mu\text{m}$	7.5 – 11.5 $\mu\text{m}$	7.7 – 9.3 $\mu\text{m}$
Detector Pitch	25 $\mu\text{m}$	25 $\mu\text{m}$	30 $\mu\text{m}$	15 $\mu\text{m}$
Optical Aperture	F/2.5	F/2.5	F/2	F/2
Max. Frame Rate (Full Window)	1 012 Hz	500 Hz	345 Hz	234 Hz
Max. Frame Rate (Subwindow)	40 000 Hz @ 64 x 8	17 000 Hz @ 64 x 8	14 100 Hz @ 128 x 8	17 200 Hz @ 160 x 2
Typical NETD	30 mK	30 mK	25 mK	22 mK
Minimum Exposure Time	0.27 $\mu\text{s}$ to full frame rate	0.27 $\mu\text{s}$ to full frame rate	5.1 $\mu\text{s}$ to full frame rate	0.2 $\mu\text{s}$ to full frame rate
Lens Mount	Threaded	Threaded	Threaded	Threaded

## HD & SUPER HD SERIES

SPECIFICATIONS	FAST M3Shd	FAST M2Shd	FAST M200hd	FAST M100hd
Detector Type	Cooled InSb	Cooled InSb	Cooled InSb	Cooled InSb
Detector Format	1920 x 1536 pixels	1520 x 1536 pixels	1280 x 1024 pixels	1280 x 1024 pixels
Spectral Range	1.5 – 5.4 $\mu\text{m}$	1.5 – 5.4 $\mu\text{m}$	1.5 – 5.4 $\mu\text{m}$ (3 to 5.4 $\mu\text{m}$ optional)	1.5 – 5.4 $\mu\text{m}$ (3 to 5.4 $\mu\text{m}$ optional)
Detector Pitch	10 $\mu\text{m}$	10 $\mu\text{m}$	10 $\mu\text{m}$	10 $\mu\text{m}$
Optical Aperture	F/3	F/3	F/3	F/3
Max. Frame Rate (Full Window)	113 Hz	50 Hz	180 Hz	100 Hz
Max. Frame Rate (Subwindow)	2 570 Hz @ 64 x 2	1 425 Hz @ 64 x 2	2 180 Hz @ 64 x 4	1 200 Hz @ 64 x 4
Typical NETD	30 mK	30 mK	30 mK	30 mK
Minimum Exposure Time	0.5 $\mu\text{s}$ to full frame rate	0.5 $\mu\text{s}$ to full frame rate	0.5 $\mu\text{s}$ to full frame rate	0.5 $\mu\text{s}$ to full frame rate
Lens Mount	Bayonet	Bayonet	Bayonet	Bayonet

## ABOUT US

Telops, part of Exosens, is a leading supplier of high-performance scientific infrared cameras for the defense, academic, industrial, and environmental research industries. Telops also offers R&D services for optical systems technology development.

Since its founding in 2000, Telops has distinguished itself through its highly skilled personnel and innovative approach to the technological challenges in optics and photonics.

Today, its experts and cutting-edge infrared cameras and hyperspectral imagers are internationally recognized.



## FEATURES & OPTIONS

### OUR INFRARED CAMERAS: KEY FEATURES & SPECIFICATIONS

All our FAST infrared cameras offer advanced features to address the most demanding research applications. They include:

- Rotary-stirling closed cycle sensor cooling.
- Blackbody-free permanent calibration (up to 150 °C).
- Calibration up to 2500 °C (optional).
- High-speed internal memory buffer: up to 32 GB (optional).
- Gig-E.
- Camera Link.
- Trigger In, Trigger Out.
- SDI, GPS, IRIG-B, RS232 and thermistor ports.
- Lock-In (optional).
- Automatic exposure control (AEC).
- Enhanced high-dynamic-range imaging (EHDMI).
- 16 bits dynamic range.
- Weight w/o lens: < 6 kg.
- \*Weight w/o lens: < 7 kg. (V1k/V500).
- Size w/o lens: 12.6" × 7.8" × 6.9" (321 × 199 × 176 mm).
- \*Size w/o lens: 12.9" × 7.8" × 7.7" (199 × 198 × 330 mm) (V1k/V500).
- Operational Vibration: IEC-60068-2-64.
- Operational Shock: IEC-60068-2-27.

### OUR INFRARED CAMERAS' LENS OPTIONS

Telops offers a variety of lens options depending on your camera configuration using either a flanged, threaded, or bayonet mount interface.

Customized optics are available, as well as many accessories such as telescopes and microscopes.

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