FLIR SC7000 LWIR Series

Infrared Cameras for Research & Science

The FLIR SC7000 Series is specifically designed for academic and industrial research and science applications as well as integrators who require a flexible camera with high sensitivity, accuracy, spatial resolution, and speed at an affordable cost.

Accurate Temperature Measurement with FLIR Hypercal™– *Ensures the best measurement range with the highest sensitivity; simply set the desired lower and upper temperature limits and the camera will automatically adjust to the appropriate integration (exposure) time.*

Motorized Filter Wheel – *Field-replaceable 4-position filter wheel for neutral density and spectral filtering applications.*

Advanced Triggering Capabilities – *Smart external triggering with ultra-low jitter allows synchronization of the image integration to the most fleeting of events.*

Fast Full Frame Rates – *Our 320 × 256 and 640 × 512 Longwave focal plane arrays deliver an outstanding 235 Hz and 115 Hz full frame rate respectively.*

FPA Windowing – *Programmable frame rate from 1 Hz to full frame with sub array windowing modes allowing for faster frame speeds.*

Plug & Play Interfaces – *Gigabit Ethernet or Camera Link™ transmit commands and full dynamic digital video.*

Built-in IRIG-B Timing Option – *Provides on-board deterministic time-stamping of each frame of data.*

Temperature Range Extension – *"Superframing" allows the sequential acquisition of thermal data from up to four user-defined temperature ranges, then merges those streams into a single real-time video that spans all four temperature ranges, effectively extending dynamic range from 14-bit to 16-bit.*

Multi-Spectral Option – *Includes a high speed 8-position filter wheel with rotation synchronized by the FPA clock, capable of capturing up to 400 frames per second, with each frame linked to a specific filter for true high speed multispectral imaging.*
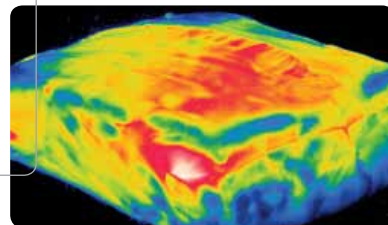
Tailored to Your Application – *FLIR offers a wide range of accessories including ExaminIR analysis software, lenses, microscopes, stands, data systems, and a software developers kit.*
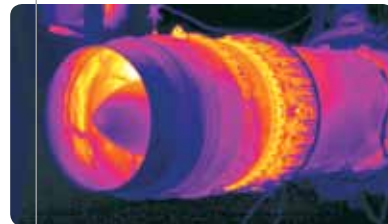
Jet engine

Rocket launch

Plastic film packaging

◆FLIR®

Imaging Specifications

Detector	SC7300L	SC7750L	SC7900VL
Detector Type	Mercury Cadmium Telluride (MCT)		
Spectral Range	7.7 – 9.3 μm	7.85 – 9.5 μm	7.7 – 11.5 μm
Resolution	320 × 256	640 × 512	320 × 256
Detector Pitch	30 μm	16 μm	30 μm
NETD	< 25 mK (20 mK Typical)	< 35 mK Typical	< 25 mK (20 mk Typical)
Well Capacity	37/12 M electrons	10 M electrons	37/12 M electrons
Operability	>99.5%		
Sensor Cooling	Internal Sterling		
Electronics / Imagining			
Readout	Snapshot (4 Channel)		
Readout Modes	Asynchronous Integrate Then Read	Asynchronous Integrate While Read Asynchronous Integrate Then Read	
Synchronization Modes	Lock-in, Trigger IN to start integration, Frame Keying (image tagging), Trigger Out (integration signal copy, frame rate signal copy, trigger IN signal copy)		
Integration Time	400 ns to 20 ms	200 ns to 20 ms	400 ns to 20 ms
Frame Rate (Full Window)	235 Hz	115 Hz	235 Hz
Subwindow Mode	User-Defined		
Max Frame Rate (@ Min Window)	30.9 kHz (64 × 3)	62 kHz (132 × 3)	30.9 kHz (64 × 3)
Dynamic Range	14-bit		
Digital Data Streaming	Gigabit Ethernet, Camera Link™		
Analog Video	NTSC, PAL, S-Video		
Command and Control	Gigabit Ethernet, Camera Link™		
Measurement			
Standard Temperature Range	5°C-150°C (41°F - 302°F)		
Optional Temperature Range	-80°C to 150°C (-112°F to 302°F) -60°C to 150°C (-76°F to 302°F) -40°C to 150°C (-40°F to 302°F) -20°C to 150°C (-4°F to 302°F) 5°C to 500°C (41°F to 932°F) 5°C to 1,500°C (41°F to 2,732°F) 5°C to 2,500°C (41°F to 4,532°F) 5°C to 3,000°C (41°F to 5,432°F)		
Accuracy	+/- 1°C or +/- 1% of Reading		
Optics			
Camera F/#	f/2.0 or f/4.0	f/2.0	f/2.0
Available Lenses	12 mm (44°), 25 mm (22°), 50 mm (11°), 100 mm (5.5°), 200 mm (2.75°)		
Close-up Lenses / Microscopes	×1 (30 μm), ×3 (10 μm)		
Focus	Automatic & Manual (Motorized & Tactile)		
Extender Rings	Yes		
Filtering	4× Position Motorized Filter Wheel (Optional Orion 8× Position High Speed Filter Wheel)		
Camera Specifications			
Operating Temperature Range	-20° C to +55° C (-4°F to 131°F)		
Storage Temperature Range	-40°C to +65°C (-40°F to 149°F)		
Shock / Vibration	25 g, IEC 68-2-29 / 2G, IEC 68-2-26		
Power	12 VDC		24 VDC
Weight w/o Lens	4.95 kg (10.9 lb)		9.5 kg (20.9 lb)
Size L × W × H w/o Lens	253 × 130 × 168 mm (9.96 × 5.11 × 6.6 in)		403 × 130 × 168 mm (15.87 × 5.11 × 6.6 in)
Mounting	1× ¼" - 20, 4 × M5		

SC7000 Packages

SC7300L R&D Package: SC7300L, 50 mm Lens, CNUC, HyperCAL Temperature Calibration, Multi-IT, Triggering, Integrated filter Wheel, ExaminIR Max Software

SC7750L R&D Package: SC7750L, 50 mm Lens, CNUC, HyperCAL Temperature Calibration, Multi-IT Triggering, ExaminIR Max Software

SC7900VL R&D Package: SC7900VL, 50 mm Lens, CNUC, HyperCAL Temperature Calibration, Multi-IT Triggering, Integrated Filter Wheel, ExaminIR Max Software

*Ask your FLIR representative about additional packages

1 Gigabit Ethernet Digital Video
2 Camera Link™ digital video
3 Smart trigger input with Ultra Low Jitter
4 Analog Signal Inputs
5 High-quality S-Video