

FLIR SC7000 MWIR Series

Infrared Cameras for Research & Science

The FLIR SC7000 MWIR Series delivers excellent thermal imagery at fast frame rates while preserving temperature accuracy and sensitivity.

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.

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.

CNUC Calibration – CNUC is a proprietary calibration process that provides beautiful imagery and measurement stability. CNUC allows flexible integration time adjustments without the need to perform non-uniformity corrections. CNUC calibration also produces accurate measurement stability regardless of camera exposure to environment variations.

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

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.

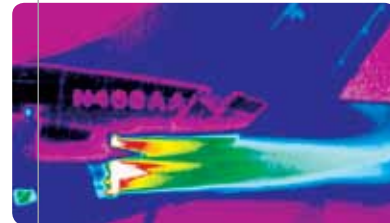
Advanced Triggering Capabilities – Smart external triggering with ultra-low jitter allows synchronization of the image integration to the most fleeting of events.

Optic Options – From long range telephoto lenses to close-up microscope objectives, the SC7000 has multiple optics available for various field of view and spot size requirements.

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.



Aircraft turbine



Jet engine



Printed circuit board

Imaging Specifications



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- 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

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| Detector Specifications | SC7650E | SC7650 |
|--------------------------------|--|---|
| Detector Type | Indium Antimonide (InSb) | |
| Spectral Range | 3.0 – 5.0 µm or 1.5 – 5.1 µm | |
| Resolution | 640 x 512 | |
| Detector Pitch | 15 µm | |
| NETD | < 25 mK (20 mK typical) | |
| Well Capacity | 6.5 M electrons | |
| Operability | >99.8% (>99.95% typical) | |
| Sensor Cooling | Internal Sterling | |
| Electronics / Imaging | | |
| Readout | Snapshot (FLIR 4 Channel) | |
| Readout Modes | Asynchronous Integrate While Read Asynchronous Integrate Then Read | |
| Synchronization Modes | Trigger IN to start integration, Frame Keying (image tagging), Trigger Out (integration signal copy, frame rate signal copy, trigger IN signal copy) | Lock-in, Trigger IN to start integration, Frame Keying (image tagging), Trigger OUT (integration signal copy, frame rate signal copy, trigger IN signal copy) |
| Image Time Stamp | PC Clock (default) / IRIG-B (optional) | |
| Integration Time | 400 ns to 20 ms | |
| Frame Rate (Full Window) | Programmable 5 Hz to 100 Hz | |
| Subwindow Mode | User-Defined | |
| Max. Frame Rate (@ Min Window) | 3.4 kHz (48 x 4) IWR / 1.8 kHz (48 x 4) ITR | |
| Dynamic Range | 14-bit | |
| Digital Data Streaming | Gigabit Ethernet, Camera Link™ | |
| Analog Video | NTSC, PAL, S-Video | |
| Command & Control | Gigabit Ethernet, Camera Link™ | |
| Measurement | | |
| Standard Temperature Range | 5°C to 300°C (41°F to 572°F) | |
| Optional Temperature Range | -20°C to 300°C (-4°F to 572°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/2.5 | |
| Available Lenses | 12 mm (44°), 25 mm (22°), 50 mm (11°), 100 mm (5.5°), 200 mm (2.75°) | |
| Close-up Lenses / Microscopes | x1 (30 µm), x3 (10 µm), x3 w/30 cm Working Distance (10 µm) | |
| Focus | Automatic & Manual (Motorized & Tactile) | |
| Extender Rings | Yes | |
| Filtering | 4x Position Motorized Filter Wheel (Optional Orion 8x Position High Speed Filter Wheel) | |
| Image Presentation | | |
| Analog Palettes | Selectable 8-bit | |
| AGC | Manual, Min./Max., Mean & Standard Deviation, ROI | |
| Multi-IT (Superframing) | Up to 4 Presets | |
| General | | |
| 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°C) | |
| Shock / Vibration | 25 G, IEC 68-2-29 / 2 G, IEC 68-2-26 | |
| Power | 12 VDC | |
| Weight w/o Lens | 4.95 kg (10.9 lb) | |
| Size L x W x H w/o Lens | 253 x 130 x 168 mm (9.96 x 5.11 x 6.6 in) | |
| Mounting | 1x ¼" - 20, 4 x M5 | |

SC7000 Packages

SC7650E R&D Essentials Package: SC7650E, 50 mm Lens, CNUC, HyperCAL Temperature Calibration, Triggering, ExaminIR Max Software

SC7650 R&D Performance Package: SC7650, 50 mm Lens, CNUC, HyperCAL Temperature Calibration, Triggering, Integrated Filter Wheel, ExaminIR Max Software

*Ask your FLIR representative about additional packages