FLIR R80D SKYRAIDER

THE FUTURE OF MULTI-MISSION UAS FOR THE U.S. DOD
The R80D SkyRaider is FLIR’s most advanced military UAS, delivering a range of versatile Group 2-3 payload capabilities with the agility and single-operator deployment footprint of a proven Group 1 VTOL aircraft.

One Platform, Many Missions
The SkyRaider’s expanded carrying capacity, open payload architecture, and dynamic and responsive flight control, provides an unprecedented level of flexibility in a single VTOL aircraft.

YOUR SMALL UAS MULTI-TOOL

Rugged & Reliable
Carbon fiber and magnesium airframe, tested to IP-54 / MIL-810G

Intelligent & Autonomous
Multiple NVIDIA TX2 processors for AI on the edge

Payloads up to 4.4 lbs
Easily attach, carry and deliver payloads up to 4.4 lbs

Flexible & Modular
New Application and Payload Development Kits

Persistent Overwatch
With Automatic In-Air Replacement (AIR) and an optional field-installable power tether, SkyRaider operators can deliver sustained eyes on target for fixed-location overwatch and surveillance.

Tactical ISR
The SkyRaider carries a suite of long-range, stabilized daylight and IR imaging payloads. These are supplemented with a front-mounted EO/IR payload for day and night situational awareness and secondary view-angle ISR when carrying non-optical payloads.

Payload Delivery
With the new Osprey carry and delivery payload, SkyRaider operators can rapidly attach, carry, and deliver nearly any object up to 4.4 lbs for forward resupply, asset extraction or other specialized missions.

Adaptive, Ruggedized, Innovative.

The R80D SkyRaider is FLIR’s most advanced military UAS, delivering a range of versatile Group 2-3 payload capabilities with the agility and single-operator deployment footprint of a proven Group 1 VTOL aircraft.
**KEY FEATURES & TECHNOLOGY**

- Carbon Fiber + Magnesium IP-Rated Airframe
- Compact design is deployable in minutes by a single operator
- 4x Redundant Batteries
  - Maintain safe flight, even under single battery failure
  - <99Wh batteries enable transport on commercial aircraft
- 2x Redundant Navigation Systems
  - Two distinct flight control computers and multiple sensor redundancy
- Front-Facing EO/IR Camera
  - Provides ISR when carrying non-optical payloads and situational awareness for safe flight in urban and BVLOS operations
- Next-Generation Comms Link
  - MIMO antennas for maximum throughput, and multi-stage failover technology
- Modular Propulsion System
  - Optimize SkyRaider for different missions (high-altitude, clandestine, long-endurance) by simply switching arms and props
- 4x Redundant Batteries
  - Maintain safe flight, even under single battery failure
- 2x Redundant Navigation Systems
  - Two distinct flight control computers and multiple sensor redundancy
- Front-Facing EO/IR Camera
  - Provides ISR when carrying non-optical payloads and situational awareness for safe flight in urban and BVLOS operations
- Next-Generation Comms Link
  - MIMO antennas for maximum throughput, and multi-stage failover technology
- Modular Propulsion System
  - Optimize SkyRaider for different missions (high-altitude, clandestine, long-endurance) by simply switching arms and props
- Multi-Use Payload Architecture
  - Payload Development Kit enables FLIR, partners, and users to quickly develop and deploy sophisticated, integrated payloads
- Laser Altimeter
  - Maintains consistent altitude over uneven terrain
- 4x Downward-Facing Computer Vision Cameras
  - Provide flight control input for future autonomous navigation capabilities

**R80D SKYRAIDER**

**MULTI-ROLE PAYLOADS**

- **HDZoom 30 and EO/IR Mk-II**
  - Evolutionary successors to SkyRanger RGB payloads; weight reduction, connectivity improvements, and advanced Vector™ features
- **Forward EO/IR**
  - Front-mounted EO/IR payload, including image fusion. Provides day and night situational awareness when carrying non-optical payloads, and secondary view-angle ISR
- **Osprey**
  - Carry and drop payloads up to 4.4 lbs. Osprey’s simple mechanical claw and mounting plate makes it easy to attach payloads in the field using zip ties
- **Payload Development Kit**
  - Extends payload development to end-users and third-party integrators, enabling the rapid development of application-specific payloads

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**PDK**
Long-Range Zoom
See Without Being Seen. The HDZoom 30 provides up to 30x optical zoom and 60x enhanced digital zoom for eyes-on-target at distances up to 3 miles (5 km).

PERFORMANCE SPECIFICATIONS
- **SHUTTER TYPE**: Mechanical
- **IMAGE STILLS**: 20 megapixels (5184 x 3888 pixels)
- **ZOOM**: 30x optical, 60x digital
- **FIELD OF VIEW**: 68.6˚ to 2.6˚ (30x), 1.3˚ (60x)
- **VIDEO RESOLUTION**: 1080p60 H.264 HD Recorded
- **REMOVABLE MEMORY**: SDHC, SDXC
- **VIDEO METADATA**: Embedded STANAG 4609 KLV Metadata
- **GIMBAL STABILIZATION**: 3-Axis
- **RANGE OF MOTION**: Roll: +/- 20˚, Pitch: +20 to -120˚, Yaw: +/- 20˚
- **ENVIRONMENTAL TOLERANCES**: IP-54, MIL-STD-810G for salt mist/rain
- **WEIGHT**: 24 oz (670 g)

High-Fidelity Infrared
The FLIR EO/IR Mk-II delivers high-fidelity daylight and thermal imagery in a weather-resistant, 3-axis stabilized gimbal.

PERFORMANCE SPECIFICATIONS
- **MAKE & MODEL**: SONY FCB-MA132 + FLIR TAU2
- **IMAGE STILLS**: EO: 13 Megapixels (4192 x 3104 pixels), IR: (640 x 512 pixels)
- **FIELD OF VIEW**: 58° / 45° (13mm) or 32° (19mm)
- **ZOOM**: 4x digital
- **VIDEO RESOLUTION**: 640 x 512 / 8.33 FPS H.264 recorded
- **COLOR PALETTES**: White-hot, black-hot, rainbow, ironbow
- **GIMBAL STABILIZATION**: 3-Axis
- **RANGE OF MOTION**: Roll: +/- 60˚, Pitch: +/- 60˚, Yaw: +/- 20˚
- **VIDEO METADATA**: Embedded STANAG 4609 KLV Metadata
- **DIGITAL ENHANCEMENTS**: Active Contrast Enhancement (ACE), Digital Detail Enhancement (DDE), Information Based Histogram Equalization (IBHEQ), Isotherms
- **ENVIRONMENTAL TOLERANCES**: IP-54, MIL-STD-810G for salt mist/rain
- **WEIGHT**: 20 oz (575 g)

CAPTURE DAYLIGHT AND THERMAL IMAGERY AT THE SAME TIME.
Ideal for both day and night operations, the EO/IR Mk-II imaging payload provides:

- Enhanced thermal (IR) imagery in a range of color palettes – white-hot, black-hot, rainbow, and ironbow
- Secure HD 1080p video streaming to the pilot and remote personnel anywhere in the world
- Choice of IR lenses – 19 mm focal length (tactical applications) and 13 mm (thermal mapping or SAR applications)
- Advanced radiometric temperature measurement, accurate to +/- 90º F (50º C)
CARRY ALMOST ANYTHING UP TO 4.4lbs (2kg)

- Individual First Aid Kit (IFAK)
- Water Purification Kit
- Life Vest
- Smaller UAS
- Water
- Small Pelican Case
- Unattended Ground Sensor (UGS)
- Tactical Radio

OSPREY - CARRY & DELIVERY PAYLOAD
FLEXIBLE PAYLOAD ARCHITECTURE

Payload Development Kit (PDK)
Extends payload development to end-users and third-party integrators, enabling the rapid development of application-specific payloads for the SkyRaider platform.

Leverage a Full Set of Payload Development Tools

ELECTRICAL + MECHANICAL + SOFTWARE INTEGRATION
Enables full integration with the SkyRaider airframe, including:

- Mechanical mounting
- Power from aircraft batteries
- Sensor data from aircraft (e.g., GPS)
- Secure IP networking for payload data

Vibration-Isolating Mechanical Airframe Design
Minimizes the need to deploy dedicated stabilization into the payload

Supplementary EO/IR Payload
Provides daylight ISR capability while flying non-optical payloads

Expanded Payload SWaP Envelope
Able to carry integrated payloads up to 4.4lbs
Moving Target Identification in Both EO and IR

Integrated into the HDZoom 30 and EO/IR Mk-II Imaging payloads, FLIR Vector™ real-time video processing software automatically targets and tracks moving objects up to 3 miles away. The tracking algorithm adapts in real-time to changes in target shape and maintains a hold on the target even when its position changes or another object obstructs the view.

- Automatically track targets
- Identify up to 10 moving objects
- Calculate target geolocation, heading and speed

VECTOR’S MOVING TARGET INDICATOR automatically annotates up to 10 moving objects within the camera’s field of view and can provide real-time calculation of target heading and speed in both EO and IR.

Automatic target handoff scenario in IR between multiple SkyRaiders using AIR

Gain Persistent Eyes on Target with Automatic In-Air Replacement (AIR)

AIR allows a fully charged, ready-to-launch SkyRaider to automatically replace another airborne SkyRaider when its battery is depleted or it needs to land.

AIR also provides real-time payload swaps for when conditions or operational requirements change (daylight into night operations) where a SkyRaider flying an EO/IR Mk-II replaces a SkyRaider flying a HDZoom 30 for improved nighttime ISR.

RaiderOS Cyber-Security

Developed exclusively for U.S. DOD and Federal Agencies operating the SkyRaider, RaiderOS adds advanced communication channels designed to keep pace with both evolving mission requirements and cyber-security threats.
Dark Mode
SkyRaider is able to execute semi-autonomous flight plans without the benefit of an active C2 link. This capability will evolve to enable applications such as:

- BVLOS payload emplacement
- Clandestine ISR in non-permissive environments, with a contested electromagnetic spectrum

Multi-Aircraft Control
Building on AIR (Automatic In-Air Replacement), SkyRaider will allow for the operation of multiple aircraft from a single GCS, with each aircraft executing a unique, semi-autonomous flight plan. This enables applications such as:

- Coordinated, multi-sensor ISR
- Large-area reconnaissance and mapping
**HIGHLIGHTS**

**MISSION COVERAGE**

**Sustained Persistence**

With FLIR’s Multi-Aircraft Autonomous Flight Controls

**EXPANDABLE PAYLOAD**

**Up to 4.4lbs**

With FLIR’s Payload Development Kit for Enhanced Payload Flexibility

**INGERESS RATING**

**IP-54/MIL-STD-810G**

FLIR UAS are Reliable and Proven in the Harshest of Battlefield Conditions

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**PERFORMANCE SPECIFICATIONS**

<table>
<thead>
<tr>
<th>SPECIFICATION</th>
<th>R80D SKYRAIDER</th>
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<tbody>
<tr>
<td><strong>ENDDURANCE</strong></td>
<td>50 minutes with high-endurance propulsion system; over 40 minutes with standard propulsion system</td>
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<tr>
<td><strong>MAX RANGE</strong></td>
<td>Up to 5 miles (8km) with standard base station</td>
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<tr>
<td><strong>MAX GROUND SPEED</strong></td>
<td>31 mph (50 kph)</td>
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<tr>
<td><strong>MAX ASCENT</strong></td>
<td>13ft/s (4m/s)</td>
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<tr>
<td><strong>MAX DESCENT</strong></td>
<td>9ft/s (3m/s)</td>
</tr>
<tr>
<td><strong>PAYLOAD CAPACITY</strong></td>
<td>4.4 lbs with standard propulsion configuration</td>
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<tr>
<td><strong>MAX CEILING</strong></td>
<td>15,000’ MSL with standard propulsion</td>
</tr>
<tr>
<td><strong>WIND TOLERANCE</strong></td>
<td>Klinen launch, silenced, matched gusting (WS60, WS90)</td>
</tr>
<tr>
<td><strong>OPERATING ALTITUDE</strong></td>
<td>Up to 15,000’ MSL</td>
</tr>
<tr>
<td><strong>TEMPERATURES</strong></td>
<td>-22˚F to 122˚F (-30˚C to 50˚C)</td>
</tr>
<tr>
<td><strong>FREQUENCY CONFIGURATION</strong></td>
<td>(Wideband + Narrowband) 900MHz + 5.8GHz, + Other frequencies and waveforms</td>
</tr>
<tr>
<td><strong>GROUND CONTROL STATION</strong></td>
<td>FLIR Mission Control Station (MCS) Software v4.x, Interoperable with FLIR SkyRaider R80D on Panasonic FZG-1</td>
</tr>
<tr>
<td><strong>VIDEO METADATA</strong></td>
<td>Embedded STANAG 4609 KLV metadata</td>
</tr>
<tr>
<td><strong>ENCRYPTION</strong></td>
<td>AES 256 bit encryption with secure key exchange</td>
</tr>
<tr>
<td><strong>ENVIRONMENTAL TOLERANCE</strong></td>
<td>IP-54, MIL-STD-810G for salt mist/rain</td>
</tr>
<tr>
<td><strong>WEIGHT</strong></td>
<td>Aircraft 9.9 lbs (4.5kg) – Airframe, arms, legs, 4 batteries, no payload Standard pack 18.7 lbs (8.5kg) – Aircraft, Base Station, HDZoom 30</td>
</tr>
</tbody>
</table>

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**REQUEST A QUOTE**

**READY TO ADD SKYRAIDER TO YOUR FLEET?**

Send us an email with your contact information to: surveillance_sales@flir.com

We look forward to working with you.

For more information and videos on the R80D SkyRaider visit visit: flir.com/r80d

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We’re Not Your Typical Drone Provider

- 10 Years of UAS experience
- Hands-on flight training
- Dedicated support team
- Made in North America