SkyRanger R60

RUGGED. RELIABLE. BATTLE-TESTED.
Lancashire Fire and Rescue Services flies a SkyRanger for hotspot identification and response coordination during an industrial fire.
Trusted by military, public safety and industrial customers around the world, FLIR’s integrated small Unmanned Aircraft Systems (UAS) deliver unmatched security, reliability and performance.

In addition to our hands-on pilot training and dedicated customer support, we partner with our law enforcement and fire operators to build successful UAS programs that save time, resources, and lives.

The FLIR SkyRanger is a rugged, reliable, and field-tested drone that aids in a wide range of applications from search and rescue operations to emergency and disaster response. Today, SkyRangers are deployed with customers in over 30 countries.

AN EYE IN THE SKY CAN MAKE ALL THE DIFFERENCE.

WHEN LIVES ARE ON THE LINE
A COMPLETE UAS SOLUTION

Field-Tested Drones
The FLIR SkyRanger R60 sets the standard for real-time, secure, aerial intelligence across a wide range of applications from search and rescue operations to emergency and disaster response. The R60’s powerful long-range zoom and infrared imaging payloads provide secure situational awareness and eyes on target from over a mile away.

Mission-Specific Software
FLIR software provides UAS operators everything you need to easily plan, capture, and distribute aerial intelligence from your UAS. By streaming live video feeds and aircraft telemetry to your emergency command center or personnel on the ground, FLIR Command is your hub for real-time UAS missions. From planning flight paths to automatically logging pilot currency and post-flight analytics, FLIR’s flight operations software helps you build a scalable UAS program for your agency.

Flight Training & Support
We are there for you every step of the way, from understanding and defining your program requirements to deploying your UAS. Our law enforcement and aviation experts will assess your program requirements, integrate with your existing systems, provide hands-on training to your team, and sustain your FLIR UAS fleet so you can focus on what matters most – keeping your community safe.

YOUR SUCCESS IS OUR PRIORITY.
Fly in Inclement Weather

IP-53 rated airframe and water resistant payloads provides safe operations in bad weather—because the weather shouldn’t stop you from responding to the call.

High Wind Stability

Stable operations in sustained 40 mph (65 kph) winds and 55 mph (90 kph) gusts so you can still fly safely on windy days.

Military-Grade Security

SkyRanger uses an AES-256 Encrypted Local Network that securely stores data only when you want to—unlike other drone manufacturers that store your data overseas.
RUGGED. RELIABLE. FIELD-TESTED.

Patented Folding Airframe
Compact, folding design is easy to transport in a standard rucksack and is deployable in minutes by a single operator without tools.

Advanced Imaging Payloads for Long-Range ISR
Infrared and zoom imaging payloads deliver electro-optical and infrared imagery and video for versatility in day or night missions.

Carbon Fiber Reinforced Polycarbonate Arms & Legs
Rugged materials stand up to daily wear and tear.

Intelligent Flight Control & Propulsion System
Delivers reliable performance in demanding conditions like high winds, extreme temperatures and inclement weather.

Simple Tablet-Based Mission Control Software
Autonomous capabilities and simple touchscreen controls require minimal training for operators.

All-digital AES-256 encrypted network with multiple frequency and waveform options.
### HIGHLIGHTS

**90 Seconds**
From pack to airborne

**Sustained Persistence**
With Automatic In-Air Replacement

**6+ Miles**
Extended operational range

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## PERFORMANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Endurance</strong></td>
<td>30-50 minutes*</td>
</tr>
<tr>
<td></td>
<td>*Actual flight time varies based on payload and operating conditions</td>
</tr>
<tr>
<td><strong>Max Range</strong></td>
<td>3km (1.86 miles) with standard base station</td>
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<tr>
<td></td>
<td>10km (6.21 miles) with directional antenna</td>
</tr>
<tr>
<td><strong>Payload Capacity</strong></td>
<td>1.5 lbs (0.7kg)</td>
</tr>
<tr>
<td><strong>Max Ceiling</strong></td>
<td>15,000' MSL</td>
</tr>
<tr>
<td><strong>Wind Tolerance</strong></td>
<td>65kph sustained, 90kph gusting (40mph, 55mph)</td>
</tr>
<tr>
<td><strong>Operating Temperatures</strong></td>
<td>-30°C to 50°C (-22°F to 122°F)</td>
</tr>
<tr>
<td><strong>Frequency</strong></td>
<td>915MHz, 922MHz, 1380MHz, 2.4Ghz + other frequencies</td>
</tr>
<tr>
<td><strong>Ground Control Station</strong></td>
<td>FLIR Mission Control Station (MCS) Software</td>
</tr>
<tr>
<td></td>
<td>Running on Panasonic FZG-1 Toughpad</td>
</tr>
<tr>
<td><strong>Video Metadata</strong></td>
<td>Embedded STANAG 4609 KLV metadata</td>
</tr>
<tr>
<td><strong>Encryption</strong></td>
<td>Secure Network Pairing: AES256 Bit Encryption with Physical Key Exchange</td>
</tr>
<tr>
<td><strong>Environmental Tolerances</strong></td>
<td>Weather-rated to IP-53</td>
</tr>
<tr>
<td><strong>Weight</strong></td>
<td>Aircraft 2.4kg (5.3lbs) – Airframe, arms, legs, batteries, no payload</td>
</tr>
<tr>
<td></td>
<td>Standard Pack 5kg (11lbs) – Aircraft, Base Station, HDZoom 30</td>
</tr>
<tr>
<td><strong>Flight Training</strong></td>
<td>3-Day Course + FLIR eLearning Academics</td>
</tr>
<tr>
<td></td>
<td>Mission-specific training and train-the-trainer programs are also available</td>
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</tbody>
</table>
Long-Range Zoom

Read a license plate from 1,000 feet with the FLIR HDZoom 30 which delivers up to 30x optical zoom and 60x enhanced digital zoom for eyes-on-target at distances up to 5 km.

PERFORMANCE SPECIFICATIONS

<table>
<thead>
<tr>
<th>SHUTTER TYPE</th>
<th>Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td>IMAGE STILLS</td>
<td>20 megapixels (5184 x 3888 pixels)</td>
</tr>
<tr>
<td>ZOOM</td>
<td>30x optical 60x digital</td>
</tr>
<tr>
<td>FIELD OF VIEW</td>
<td>68.6˚ to 2.6˚ (30x), 1.3˚ (60x)</td>
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<tr>
<td>VIDEO RESOLUTION</td>
<td>1080p60 H.264 HD recorded</td>
</tr>
<tr>
<td>REMOVABLE MEMORY</td>
<td>SDHC, SDXC</td>
</tr>
<tr>
<td>VIDEO METADATA</td>
<td>Embedded STANAG 4609 KLV Metadata</td>
</tr>
<tr>
<td>ENVIRONMENTAL TOLERANCES</td>
<td>All-weather operations, IP-53 compliant</td>
</tr>
<tr>
<td>WEIGHT</td>
<td>24 oz (670 g)</td>
</tr>
</tbody>
</table>
**SKYRANGER PAYLOAD**

**EO/IR Mk-II**

*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**

<table>
<thead>
<tr>
<th>MAKE &amp; MODEL</th>
<th>SONY FCB_MA132 + FLIR TAU2</th>
</tr>
</thead>
</table>
| IMAGE STILLS | EO: 13 megapixels (4192 x 3104 pixels)  
IR: (640 x 512 pixels) |
| FIELD OF VIEW | EO: 58˚  
IR: 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 |
| 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 | All-weather operations, IP-53 compliant |
| 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 +/- 90° F (50° C)
FIND AND TRACK MOVING OBJECTS

Moving Target Identification in Both EO and IR

FLIR’s 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 (the green box) 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 Infrared (IR).
Gain Persistent Eyes on Target with Automatic In-Air Replacement (AIR)

AIR allows a fully charged, ready-to-launch SkyRanger to automatically replace another airborne SkyRanger 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 SkyRanger flying an EO/IR Mk-II replaces a SkyRanger flying an HDZoom 30 for improved nighttime ISR.
ADVANCED CAPABILITIES FOR A BROAD RANGE OF MISSION SETS

SEARCH & RESCUE

Find People Faster

With SAR operations, the sooner search efforts start, the better the chance of a successful outcome. SkyRanger can be airborne within minutes of first responders arriving on scene. Pre-planned flight paths and Vector motion tracking enable the operator to easily fly a grid search in a given area and automatically spot moving objects. Both infrared and daylight cameras help spot people hidden in tree cover and rough terrain.

TACTICAL OPERATIONS

Make Better Decisions

Warrants, raids, barricades, and hostage situations are some of the most dangerous operations for police officers. An aerial perspective can help officers gain critical situational awareness while maintaining a safe standoff distance. SkyRanger is ideal for providing critical monitoring of any high-risk situation where decisions need to be made quickly and can remain on-station to stream live multicast video to officers and command posts simultaneously.

DISASTER RESPONSE

Direct Aid Where It’s Needed Most

From forest fires, to hurricanes, to tornadoes, first responders need to be prepared to quickly assemble a response in the aftermath of a natural disaster. SkyRanger enables rescue teams to fly before other manned aircraft arrive on scene, quickly assessing damage, locating survivors and providing the intelligence needed to determine where aid is needed most.
Gain a Clear Vantage Point

When a freight train carrying hazardous materials derailed outside Louisville, Kentucky first responders needed to quickly assess the scene, while maintaining a safe standoff distance. With the nearest helicopter down for maintenance, R60 provided critical imagery of the derailment, and the aerial vantage point necessary to ensure the investigation, documentation and clean up went smoothly.

Clear Roads 4x Faster

Investigating a collision requires a fine balance between two competing demands – the requirement for collecting thorough, lasting evidence and the need to open roads as quickly as possible. The R60 provides a full range of aerial mapping and automated point cloud solutions that enable first responders and investigation teams to map and clear a site up to 4 times faster than with a Total Station or traditional measures.

Find Hot Spots

SkyRanger enables the persistent observation and monitoring of a fire and can fly when darkness or smoke prevents manned aircraft or ground crews from getting near a blaze. The FLIR MK-II EO/IR camera is a vital tool to help you see through smoke and monitor the fire’s spread, so you can quickly visualize your plan of attack, locate hot spots, and save lives.
INTEGRATED MISSION MANAGEMENT WITH FLIR COMMAND

Share Critical Information With Your Chain of Command

FLIR Command gets the right data to the right people, at the right time, enabling prompt and accurate decision making.

COORDINATE YOUR EMERGENCY RESPONSE
- Stream live video & telemetry
- Toggle between EO/IR camera feeds
- Quickly upload stills & videos
- Remotely designate targets & waypoints

MANAGE YOUR UAS PROGRAM
- Plan & schedule flights
- Manage your UAS fleet & track pilot stats
- Store & organize media
- Automatically generate reports & logs

COMING SOON
- See the location of your personnel with BLUE FORCE TRACKING
- Integrate cell phone & other video feeds

QUICKLY DISTRIBUTE THE SKYRANGER LIVE VIDEO FEED TO YOUR MOBILE COMMAND TRUCK, EMERGENCY RESPONSE CENTER OR OFFICERS IN THE FIELD.

“As a first-response agency, it’s critical that our chain of command sees what the SkyRanger sees, without delay. Watching the live video as well as telemetry gives everyone involved the critical data that’s needed when responding to incidents.”

MARK FAIRCLOUGH
STATION MANAGER,
GREATER MANCHESTER FIRE AND RESCUE SERVICE
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 SkyRanger visit: www.flir.com

We’re Not Your Typical Drone Provider

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