

GOVERNMENT & DEFENSE

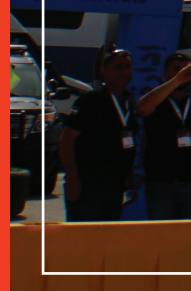
SkyRanger R70

THE NEXT-GENERATION SKYRANGER





امارات
Directorate



SKYRANGER R70

THE NEXT- GENERATION SKYRANGER



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 2 kg

Easily attach, carry, and deliver payloads up to 2 kg.

Flexible & Modular

New Application and Payload Development Kits.

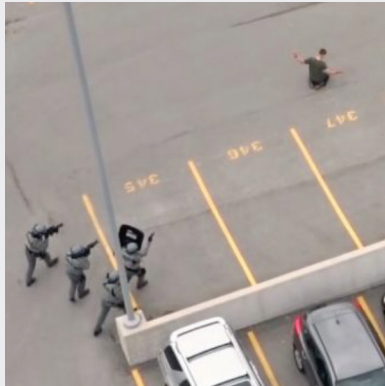
*A TRUSTED UAS PROVIDER
FOR MILITARY AND PUBLIC
SAFETY ORGANIZATIONS
AROUND THE WORLD.*



SEARCH & RESCUE



TACTICAL OPERATIONS



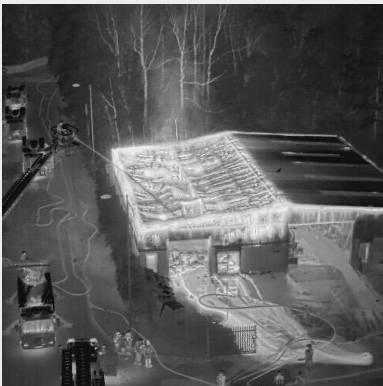
DISASTER RESPONSE



CRASH
RECONSTRUCTION



EMERGENCY RESPONSE



PACKAGE DELIVERY



SKYRANGER R70

YOUR SMALL UAS MULTI-TOOL

Adaptive. Ruggedized. Innovative.

The SkyRanger R70 is FLIR's next-generation SkyRanger, delivering a wide range of payload capabilities with the agility and single-operator deployment footprint of a proven small UAS.

One Platform, Many Missions

The R70's expanded carrying capacity, open payload architecture, and dynamic and responsive flight control, provides an unprecedented level of flexibility in a single VTOL UAS.



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

4 Downward-Facing Computer Vision Cameras

Provide flight control input for future autonomous navigation capabilities

Multi-Use Payload Architecture

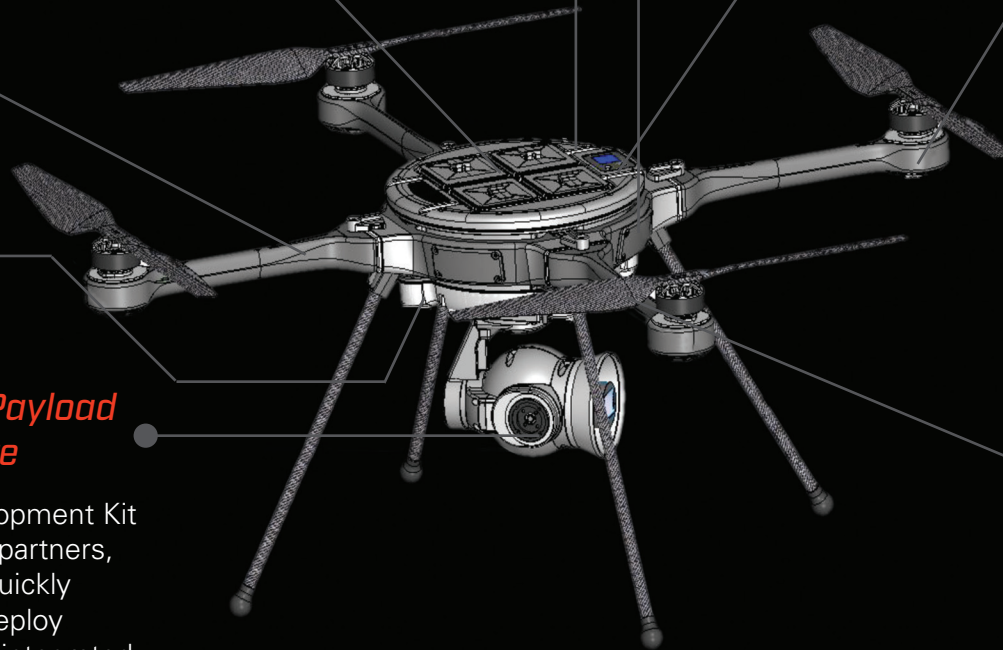
Payload Development Kit enables FLIR, partners, and users to quickly develop and deploy sophisticated, integrated payloads

Modular Propulsion System

Optimize R70 for different missions by simply switching arms and props

Laser Altimeter

Maintains consistent altitude over uneven terrain

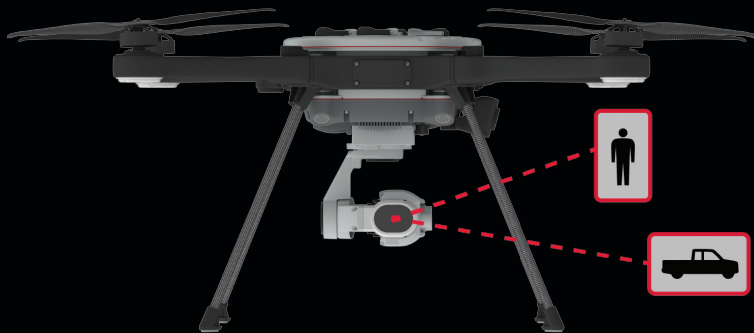


NEW TECHNOLOGY:

AERIAL ARTIFICIAL INTELLIGENCE

AI on the Drone

With multiple embedded NVIDIA TX2 processors, the SkyRanger R70 is a flying supercomputer with an engine for real-time artificial intelligence at the network edge, including object detection and classification.



SKYRANGER R70

MULTI-ROLE PAYLOADS



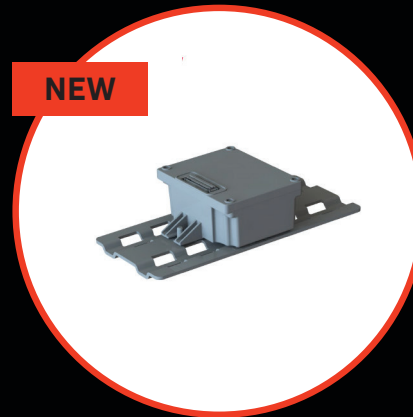
HDZoom 30 and EO/IR Mk-II

Evolutionary successors to SkyRanger R60 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

Ability to carry or drop payloads up to 2kg; provides ability to construct simple payloads in the field.



Payload Development Kit

Extends payload development to end-users and third-party integrators, enabling the rapid development of application-specific payloads.



IMAGING PAYLOAD

HDZoom 30

Long-Range Zoom

See Without Being Seen. 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 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	All-weather operations, IP-53 compliant
WEIGHT	24 oz (670 g)

ACTUAL IMAGE FROM 300 METERS



ACTUAL IMAGE FROM 2KM

IMAGING 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

MAKE & MODEL	SONY FCB_MA132 + FLIR TAU2
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
GIMBAL STABILIZATION	3-Axis
RANGE OF MOTION	Roll: +/- 20° 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	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).



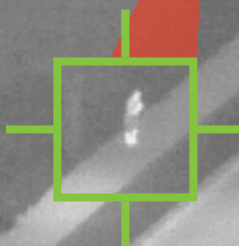
KEEP EYES ON TARGET FOR HOURS

UAS 2
GROUND PREPLACEMENT

UAS 1
LOW ON BATTERY



TARGET OF
INTEREST



*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.

AUTOMATIC TARGET HANDOFF SCENARIO IN IR
BETWEEN MULTIPLE SKYRANGERS USING AIR

OSPREY - PACKAGE DELIVERY PAYLOAD

*CARRY ALMOST
ANYTHING UP TO
4.4lbs (2kg)*



*Individual
First Aid Kit
(IFAK)*



*Water
Purification
Kit*



*Throwbot
Tactical
Robot*



*Small
Pelican
Case*



Life Vest



*Smaller
UAS*



*Unattended
Ground
Sensor
(UGS)*



*Tactical
Radio*



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 R70 platform.

Leverage a Full Set of Payload Development Tools

ELECTRICAL + MECHANICAL + SOFTWARE INTEGRATION

Enables full integration with the R70 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 day/night ISR capability while flying non-optical payloads

Expanded Payload SWaP Envelope

Able to carry integrated payloads up to 2.5 kg



SIGINT



LASER GAS DETECTION



SKYRANGER SOFTWARE

STATE-OF- THE-ART SOFTWARE

Multi-Aircraft Control

Building on Autonomous In-Air Replacement (AIR), the R70 will allow for the operation of multiple aircraft from a single GCS, with each aircraft executing a unique, semi-autonomous flight plan.

Dark Mode

SkyRanger R70 is able to execute semi-autonomous flight plans without the benefit of an active C2 link.

GPS-Denied Operation

Utilizing the 4 dedicated computer vision cameras, the R70 aircraft can localize itself and hold position in environments with little or no GNSS reception.



APPLICATION DEVELOPMENT KIT (ADK)

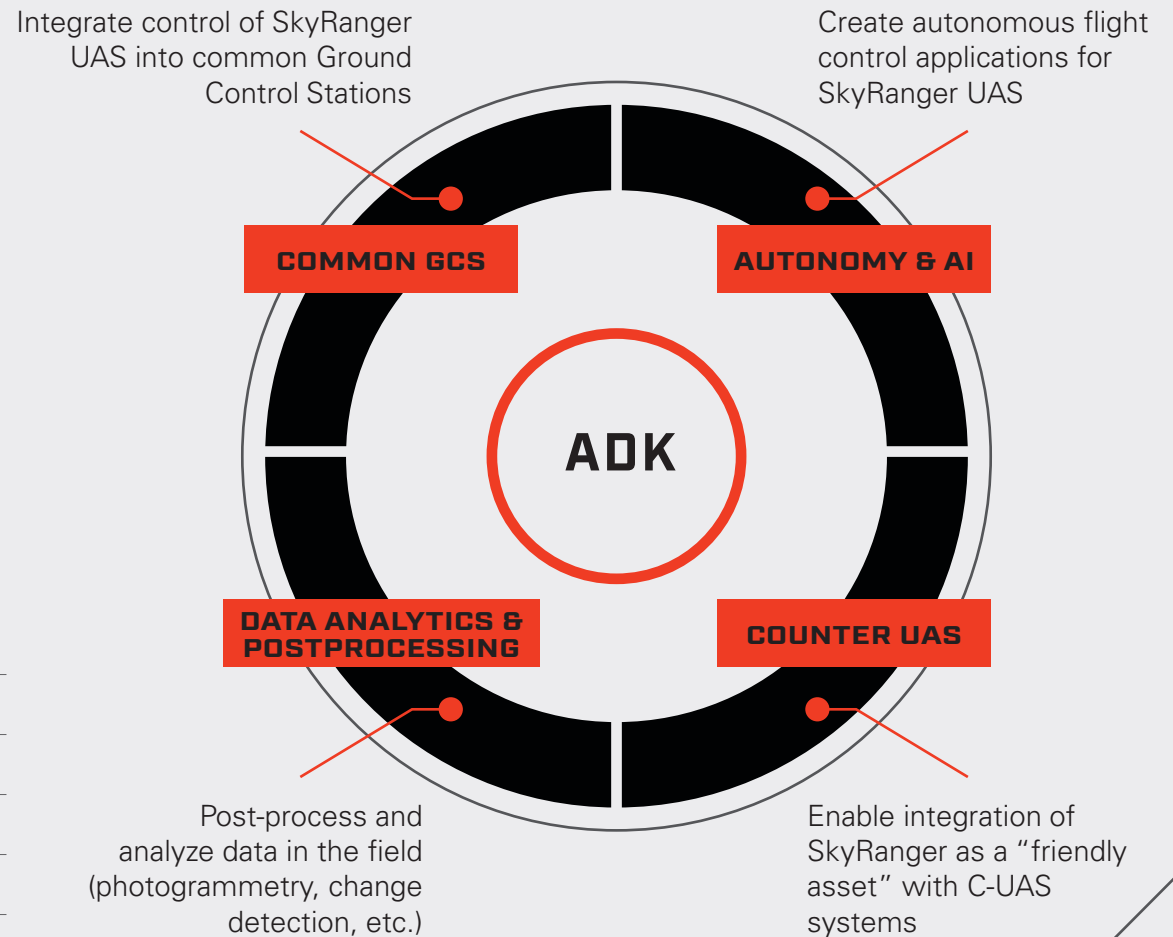
The FLIR ADK provides partners and systems integrators access to a full suite of aircraft and payload controls, including the ability to control SkyRanger using a common Ground Control Station (GCS).

Use-Cases

The ADK can be applied to multiple domains to enhance and automate UAS operations:

FUNCTIONAL COMPONENTS

DISCOVERY	Automatic discovery of aircraft and base stations on the network
AUTH	Authentication and control arbitration
CAMERA	Video pipeline and sensor-level controls
NAVIGATION	Aircraft command and control
GIMBAL	Gimbal command and control
OBJECT MODEL	Reflection, object state and hierarchy



TYPICAL CONFIGURATION

BASE STATION ●

● BATTERIES

● AIRCRAFT



● TOUGHPAD TABLET

INTERCHANGEABLE PAYLOADS ●

SKYRANGER R70

*Longer Flight Times, Bigger
Payloads, More Missions*

HIGHLIGHTS

MISSION COVERAGE

Sustained Persistence

With FLIR's Multi-Aircraft Autonomous
Flight Controls

EXPANDABLE PAYLOAD

Up to 2 kg

With FLIR's Payload Development Kit for
Enhanced Payload Flexibility

INGRESS RATING

IP-54/MIL-810G

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

PERFORMANCE SPECIFICATIONS

MISSION COVERAGE	Up to 50 minutes with high-endurance propulsion system* Over 40 minutes with standard propulsion system* <small>* Endurance specifications measured with Forward EO/IR payload; actual flight time varies based on payload and operating conditions</small>
RADIO RANGE	Up to 8km (5 miles) with standard base station
MAX GROUND SPEED	50kph (31mph)
MAX ASCENT, DESCENT SPEED	4m/s (13ft/s) 3m/s (9ft/s)
PAYLOAD CAPACITY	Osprey: Up to 2kg (4.4lbs)
MAX CEILING	15,000' MSL with standard propulsion
WIND TOLERANCE	65kph sustained, 90kph gusting (40mph, 56mph)
OPERATING TEMPERATURES	-30°C to 50°C (-22°F to 122°F)
FREQUENCY CONFIGURATION	915MHz, 922MHz, 2.2GHz, 2.488Ghz + other frequencies
GROUND CONTROL STATION	FLIR Mission Control Station (MCS) Software v4.x Interoperable with FLIR SkyRanger R60 on Panasonic FZG-1
VIDEO METADATA	Embedded STANAG 4609 KLV Metadata
MISSION DATA	AES 256 bit encryption with secure key exchange
ENVIRONMENTAL TOLERANCE	IP-54, MIL-STD-810G for salt mist/rain
WEIGHT	Aircraft 4.5 kg (9.9 lbs) (Airframe, arms, legs, 4 batteries, no payload) Standard Pack 8.5 kg (18.7 lbs) (Aircraft, Base Station, HDZoom 30)



ACCESSORIES



Joystick Controller

- Multiple flight modes and user-programmable buttons for responsive, tactile mission control
- Quickly and securely mounts to multiple sizes of GCS tablet
- IP rated for all weather operations



Rucksack

- Integrated carry solution for all components of single aircraft R70 solution
- Berry-amendment compliant materials
- Available in black, multi-cam, or desert tan



Endurance Kit

- Combination of props, motors, and batteries optimized for extended free-flight mission time
- Over 50 minutes endurance with forward EO/IR payload



Charging Solutions

- Multiple charging options for R70 aircraft batteries and Base Station
- Both 4 bay and 8 bay chargers available for rapid charging of multiple batteries





REQUEST A QUOTE

READY TO ADD SKYRANGER R70 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
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

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