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Locomotive Linkage, Intelligent Fire  
Emergency Rescue  
ALFA-F190 Heavy Duty Moored Fire Drone

E.T ALFA Enerji ve Yapı Sistemleri Anonim Şirketi  
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## ALFA UAV Solutions

### Fire truck Fire fighting system

The ALFA next-generation vehicle-integrated firefighting and rescue system is designed for fire trucks operating in high-rise and complex emergency scenarios. The platform combines a tethered UAV, ground-based firefighting support, fire monitoring, emergency power support, and mobile command capabilities to improve response speed, operational efficiency, and situational awareness during rescue operations.



1. Fire truck with air compression foam system and high-pressure water monitor function, with 60 high-pressure water pump and Class A foam air compression system.

2. Equipped with a tethering system and power generation system, which can provide long-term firefighting and rescue for tethered drones.

3. Support two Fire fighting UAVs to spray foam at the same time, one rescue broken window UAV and on-board UAV command and monitoring platform.

4. It is equipped with 2000 liters of water tank and 300 liters of Class A foam mixed liquid tank (supporting two tethered firefighting UAVs to spray foam continuously for 2 hours).

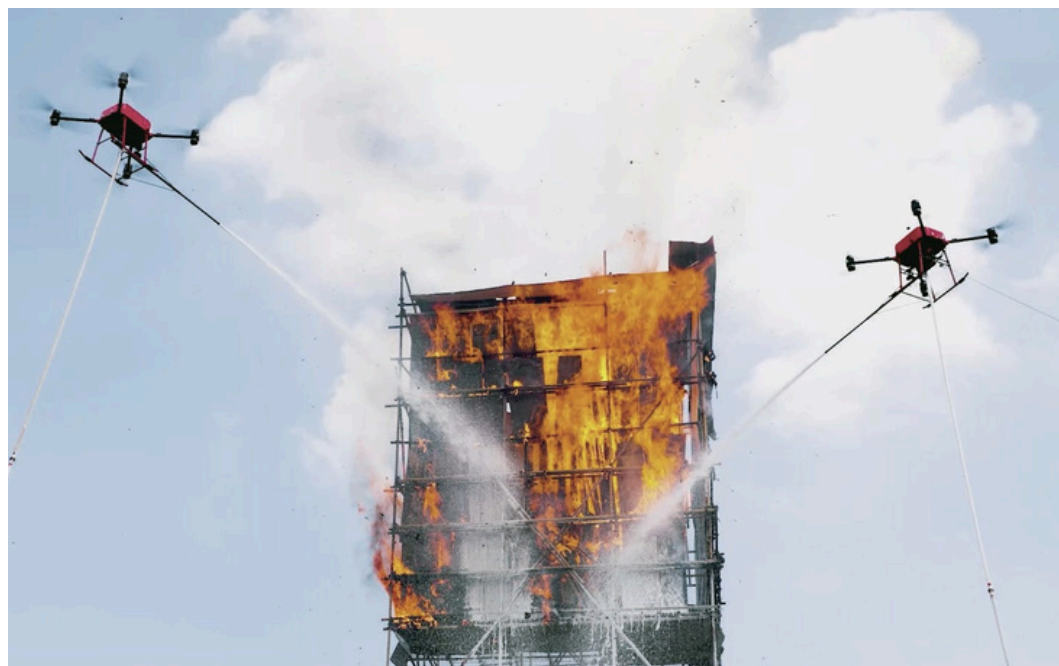
5. Equipped with explosive flashing warning light system, 360 degree panoramic driving assistance system, adjustable 360 degree rotating lighting system, and roof water cannon system.

## Vehicle mounted tethered multi rotor system

The system has advantages such as rapid deployment capability, strong environmental adaptability, simple and reliable system, and expanded task load. By carrying different task loads, it can complete tasks such as regional reconnaissance, lighting, and highrise firefighting operations.



- The tethered drone mission payload can reach **80KG**
- Able to achieve a height of **170 meters** above the ground
- Continuous stagnation time of up to **72 hours**
- Support for different task load extensions



### Ground Fire extinguishing platform



The fire truck is equipped with a high-pressure water cannon and two water gun interfaces for fire fighters to use directly, effectively extinguishing low rise buildings and ground targets.

### Emergency power supply platform



The Fire truck is equipped with 380V and 220V emergency power supply interfaces to meet emergency power needs such as lighting, medical, heating, and communication, providing reliable support for firefighters to quickly build ground emergency workstations.

### Vehicle Command Center



The Fire truck is equipped with a multi screen and multi screen monitoring and command platform, which can monitor the drone image, takeoff platform, and the surrounding situation of the fire truck in real time. Through 5G network communication equipment, on-site data can be transmitted back to the headquarters command center in real time.



50 Fire hoses - mooring height test **120 meters** above ground



40 Fire hose - mooring height test **170 meters** above ground

## Advantages of locomotive linkage in high-rise fire extinguishing



1. Quickly reach the disaster location
2. Quickly deploy equipment and carry out firefighting tasks
3. Full video system monitoring to control the development of the fire situation
4. Control the optimal firefighting time to ensure the safety of disaster victims and firefighters

# ALFA-F190

## ALFA Fire Emergency Response and Rescue System

### Heavy load

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The maximum load of the tethered firefighting drone can reach 80kg,  
The maximum load of the (battery version) firefighting drone can reach 60kg.

### Foldable and portable design

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Adopting four axis vertical folding and modular design, fast operation,  
convenient for daily transportation and assembly.



### High altitude firefighting operation

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Realize rapid takeoff and arrive at the ignition point to carry out firefighting operations.


### 30x optical zoom camera

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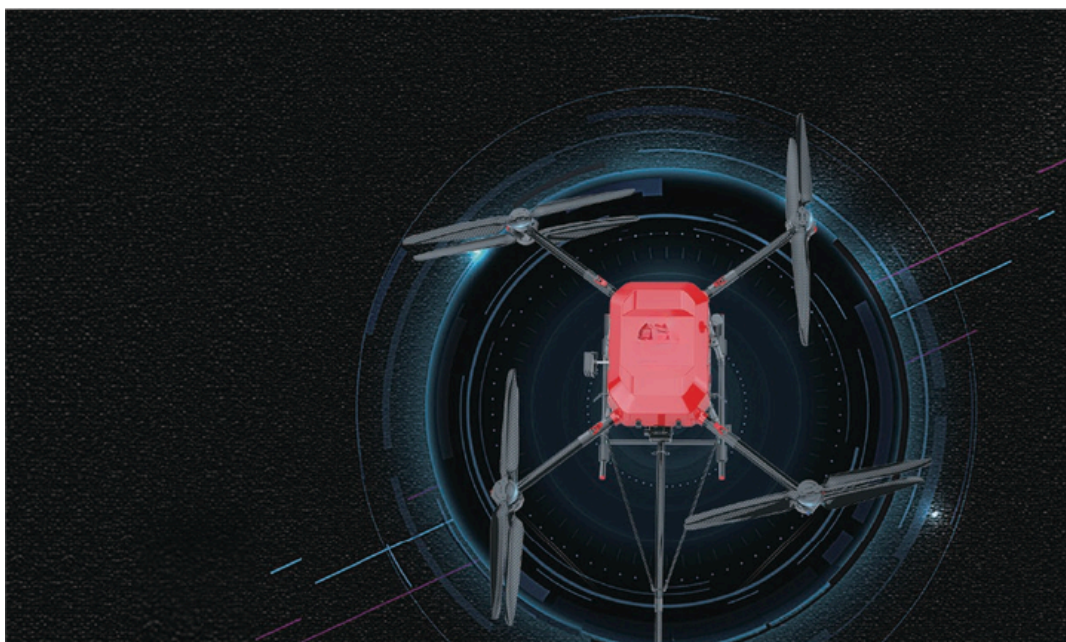
Equipped as standard with a 30x optical zoom camera for ultra long distance monitoring,  
it can observe on-site conditions and effectively assist in formulating Rescue plan.

## LiDAR Obstacle Detection System

Using LiDAR technology and high-precision sensors, an intelligent obstacle avoidance system can achieve a laser ranging of up to 100 meters. It can identify obstacles in the forward direction of 3-20 meters (adjustable) and brake to slow down, preventing risks caused by misoperation and ensuring your flight safety. Double protection of obstacle avoidance and distance measurement, making your flight safer and increasing the probability of rescue.



Laser ranging up to **100m**  
Able to identify obstacles in the forward  
direction of **3-20m** (adjustable)



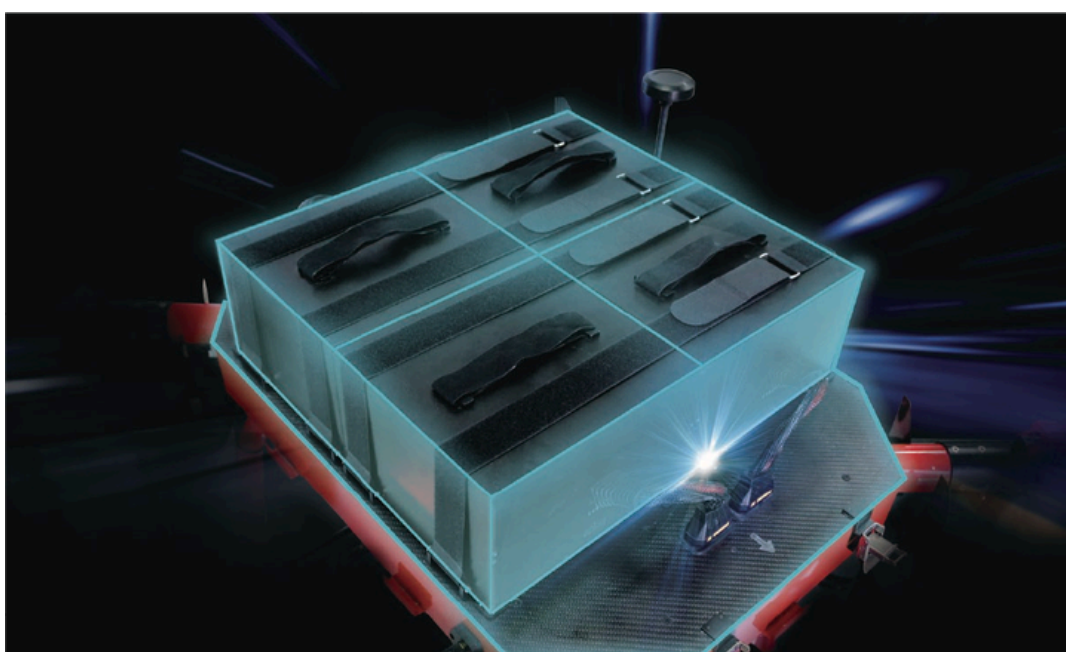
## Intelligent remote control for firefighting drones

We have designed an intelligent remote control ALFA-K12 specifically for fire rescue drones, using a Qualcomm processor. Equipped with Android embedded system, advanced SDR technology and super protocol stack, images are clearer, latency is lower, distance is longer, and anti-interference is stronger. Let you get rid of the interference of complex information when using ordinary mobile devices, and work more easily and efficiently.



## Intelligent flight battery

The super large capacity battery and built-in intelligent power management system greatly improve the safety during flight. The standard high-capacity battery (battery version) has a single flight endurance of up to 60 minutes (empty). The APP has built-in low voltage alarm and battery management, greatly improving battery life and work efficiency, ensuring stable flight of drones, and better escorting your flight.



## Intelligent Control APP

We have designed an app specifically for firefighting drones to meet the special needs of firefighting and rescue, simplifying operations and making operations easy. A monitorable platform that facilitates operator statistics and supervision, enables real-time viewing of job progress, planning of job routes, and real-time display of job and flight parameters.



# Program Value



## Replace Firefighters

In urban fire protection applications, Drones can replace manual fire detection to reduce casualties among firefighters.



## Save time

In the application of Wildfire suppression, UAVs arrive at the scene quickly to gain valuable time for decision-making.



## Avoiding accidents

Rapid investigation of large-scale fires, timely transmission of images for decision-making by the command center, early prediction of tank bodies with high oil temperature, and avoidance of secondary explosions.



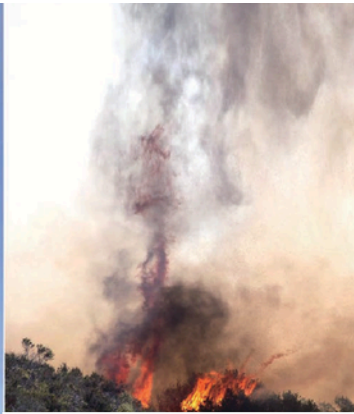
## Improving efficiency

Unmanned aerial vehicles provide a highaltitude perspective, forming threedimensional monitoring, real-time monitoring of the direction of the fire, improving fire extinguishing efficiency, ensuring the safety of firefighters, and providing the best evacuation route for the fire brigade.

# Expandable application fields



High level emergency rescue



Forest fire rescue



Fire training demonstration



Container terminal



Chemical plant

# Optional camera Gimbal

## 30x 4K optical zoom camera

12 million high-definition 4K image quality

Image sensor	1/2.3 inch SONY IMX117 CMOS
Lens pixels	12 million
Optical zoom	30x optical zoom
Focal length	6.7-134.5mm
Recording resolution	4K 30fps
Camera resolution	3840x2160
Suitable for night surveillance and reconnaissance, security patrols	



## ALFA-Z130

Laser compensation camera

Image sensor	1/2.8 inch SONY CMOS
Image quality	1080P high-definition camera
Optical zoom	30x optical zoom
Total pixels	2.16 million
Effective distance of supplementary light	≥500m
Lighting angle	2.0 °~70.0 ° continuously adjustable
Suitable for night surveillance and reconnaissance, security patrols	



## ALFA-Z130

Infrared Dual-lens Camera

Pixel	1080P (2 million)
Optical zoom	30x optical zoom
Illuminance	0.001lux/0.01 30x magnification
Infrared thermal imaging	25mm 640x480 resolution
Pixel spacing	12μm
Temperature measurement function	Display of maximum temperature, minimum temperature, center point, and average temperature
Suitable for night monitoring and reconnaissance, fire protection, and security patrols	



## Fire application mount

### Dry powder Fire extinguisher module

- Electronic fast opening method
- Powder spraying pipe operation



### Water hose module

- Easy installation
- It can be connected to Fire hydrant and fire truck for high-pressure water supply



### Aviation Laser Forest Fire Extinguishing Bomb

- Net weight of extinguishing agent:  $\geq 10\text{kg}$
- Fire extinguishing agent distribution area:  $\geq 50\text{ m}^2$
- Fire extinguisher safety radius:  $\geq 15\text{m}$
- Safety insurance: dual safety, explosion-proof type



## Professional broken window module

- Fast window breaking speed
- Easy installation
- Safe and reliable operation
- Small and portable



## Searchlight

- Compact size
- Can switch different lights
- Suitable for nighttime search and lighting applications



## Aerial Megaphone

- Development of call broadcast system based On wireless fm transmission technology
- Equipped with remote real-time call amplification function
- Applicable: on-site command, crowd evacuation, law enforcement shouting



## Firefighting material transportation box module

- The net weight of materials that can be loaded is approximately 45.5kg
- Transportable firefighting materials, food, medical supplies, etc



# Technical parameter

## Aircraft parameters

Symmetrical motor wheelbase	2064mm
Body size (L * W * H)	Unfolded: 2710mm x 2704mm x944mm Folding: 1100mm x 970mm x944mm
Blade size	Diameter: 48 inches Material: Carbon fiber
Max weight	145 kg (sea level)
Max rise speed	5m/s
Max descent speed	3m/s
Maximum horizontal flight speed	GPS mode: 5m/s Sports mode: 3-10m/s adjustable (in a calm environment) Attitude mode: 15m/s (in a calm environment)
The maximum allowable wind speed	17.7m/s
Maximum flight altitude	5000m
Power battery	High-voltage lithium 14s
(Battery version) Max flight time	60 minutes
Recommended working environment temperature	-20 °C to +55 °C

## Camera parameters

Image sensor	1/2.3 inch SONY IMX117 CMOS
Lens pixels	12M
Zoom magnification	30x optical zoom
Recording resolution	4K 30fps
Camera resolution	3840x2160

## Remote control (ALFA-K12)

Model	ALFA-K12
Working Frequency	2400MHz to 2483MHz
Maximum communication distance	12km (open, unobstructed, no electromagnetic interference)
Display device	5.5 inches 1920 * 1080 1000nits High brightness display : Android system

## Water hose

Water hose specification	Diameter: 40mm; length: 100m
Maximum pressure	2.0 MPa
Spraying material	Air compression foam medium

## Powder spray tube

Material	Carbon fiber
Expansion length	4.33m (the shortest can be reduced to 1.5m)

## LiDAR ranging obstacle avoidance

Ranging range	100m
Obstacle perception	Range 3-20m adjustable
FOV	Horizontal 20 °, Vertical 3 °
Measurement frequency	10kHz

## Laser sight

Output power	1W
Spot form	Punctate distribute
Beam style	Continuous linear
Working temperature	-10°C to +60°C
Storage temperature	-10°C to +40°C

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