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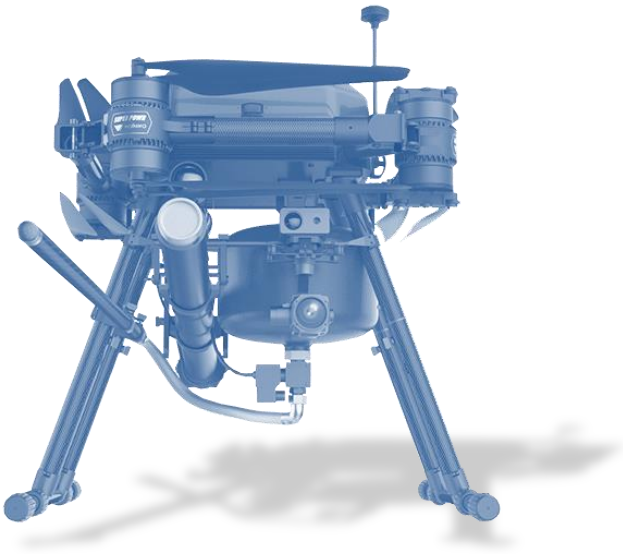

EUROPEAN COMMUNITY

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MODEL FLEXI-DRAGON

Throwing fire extinguisher ball drone automatic thrower Fire Extinguisher Ball Release and Drop Device For Fire Fighting

Throwing fire extinguisher ball is an activation or trigger strip is embedded into the ball's outer casing, which securely holds the dry fire extinguishing agent inside.

When the activator or trigger is exposed to flames for more than a few seconds, the casing will burst open and disperse a cloud of chemical powder in the immediate vicinity.

It releases a blanket of CO2 gas that keeps air from the fire.

A dry-powder extinguisher (2) contains sodium bicarbonate, which smothers a fire.

A soda-acid extinguisher (3) contains sodium carbonate and a flask of acid. If the flask is broken, a chemical reaction releases a stream of frothy water.

The traditional fire fighting method is sometimes restraint by some factors, like rough terrains or other unfavorable site conditions that are making it impossible for fire trucks or too dangerous for fire fighters to approach the fire scene, and as a result, people die and buildings get burnt down. Fortunately, Extinguisher Ball Release and Drop Device For Fire Fighting can solve that problem.

It is originally designed for fire fighting, whether it's forest fire, or ones that happen in chemical plants, a cruising large ship, or residential areas, as long as it can reach the destination, it can be put into use.

Later on, derived from its former use, it is applied to more other fields like military application, medical supplies transport, emergency food delivery or it can even throw life jackets, LED lights to drowning victims on condition that the supplies that are going to be released are packed in round-shape containers. It is made of 7075 aviation aluminum alloy and carbon fiber, which gives the main body a firm supporting structure while remains light.

It has two servos that enable the device to have two release mode: single and double release.

Its fast reload design allows people to take an instant and effective measure in fire fighting, thus reducing casualties and property loss.

MODEL FLEXI-DRAGON

Features:
-Light and durable
-Two servos: Single/double release
-Fast reload design
-6-ball（Dual）/3 balls(Single) loading capacity
Applications:
Fire fighting: forest fire, military applications, fire control in chemical plants, large ships, or residential areas, etc.
Other fields: military application, medical supplies transport, emergency food delivery or marine delivery(packed in round-shape containers),etc.
Specifications(Dual):
Frame weight: 1.7kg(no payload)
Size: 470mm x 317mm x 291mm
Material: 7075 Aviation aluminum alloy, Carbon fiber
Power supply mode: On-board DC-DC
Working voltage: 24 V
Signal input: PWM input
Default control range: 800m(can be expanded by better RC)
Load capacity: 6*fire extinguisher balls
Suit for Ball size and weight: 150mm(1.3kg)
Release mode: Single/double release
Suggested release height: 5-50m
Response time:3-5s
Fire extinguishing range: 3 m2 / ball(just for reference)
Working Temperature: -10 ℃~ +70℃
Specifications(Single):
Frame weight: 1.2kg(no payload)
Size: 490mm x 210mm x 310mm
Material: 7075 Aviation aluminum alloy, Carbon fiber
Power supply mode: On-board DC-DC
Working voltage: 24 V
Signal input: PWM input
Default control range: 800m(can be expanded by better RC)
Load capacity: 3*fire extinguisher balls
Suit for Ball size and weight: 150mm(1.3kg)
Release mode: Single/double release
Suggested release height: 5-50m
Response time:3-5s
Fire extinguishing range: 3 m2 / ball(just for reference)
Working Temperature: -10 ℃~ +70℃

UAV emergency response in the event of wildfire

Firefighting drone FLEXI-DRAGON

The high floors of the city are rising, and the floors are getting higher and higher, which brings great challenges to fire rescue.

The fire floor equipment on the floor is too high to quickly reach the control of the fire, and can only be allowed to ravage the fire, these reason causing major fire accidents.

In response to this problem, we have developed a dual fire-fighting drone, that has a large load capacity, strong wind resistance, high throwing precision, and can fire extinguishers remotely in a complex fire weather environment. At the same time, it can also spray fire extinguishing powder at close range.

The double fire fighting drone is a special fire fighting drone for high-rise buildings.

Fire fighting drone's features a folding fuselage design, super-load and anti-shock design, fast access to high-rise fire scenes, high-powered cameras to observe fire, and firearms to launch firefighting drones.

Function:

- 30-x optical zoom camera (can adopt thermal cameras and Infrared cameras as client require).
- Launch extinguishing system to break glass window and blow ABC powder extinguishing agent.
- Carry Lidar for Intelligent obstacle avoidance system.
- Night vision aiming system.
- Carry ABC powder extinguishing agent.
- Electronic quick control in APP software.
- IP-65 three defense capabilities.

Weight:50 kg
Dimensions: 98 × 80 × 60 cm

Specifications

Aircraft

Symmetrical motor wheelbase: 1500 mm
Fuselage size unfold: 1150×1150×760 mm; fold: 650×650×760 mm
Max. Take off weight: 45 kg
Propellers: Diameter X screw pitch: 30×9.9 inch; Single weight: 160 g
Motor: KV value: 100 rpm/V; size of the stator: 81×20 mm; Weight: 630 g

ESC
Sustained current: 80A
Battery: 6~12S
PWM input level Signal: 3V/5V compatible
Compatible frequency: 50～500 Hz

Battery Voltage: 45.6V; capacity: 44000 mAh; energy: 2006.4 Wh; Type: LiHV 12S; discharge current: 25C
Max. Rising speed: 5 m/s
Max. Lowering speed: 3 m/s
Max. Horizontal flight speed: Sport mode: 8 m/s(windless); Attitude mode: 15 m/s(windless)
Max. Pitch Angle: 25°
Max. rotational angular velocity pitch axis: 120 °/s, Heading axis: 120 °/s
Max. Bearable wind speed: 14 m/s
Max. Flight altitude: 5000 m
Max. Flight altitude(GPS); Vertical: ±0.5 m, Level: ±1.5 m (when GPS positioning is working normally)
Max. endurance: 35 mins

Gimbal and surveillance camera

Gimbal size: 136×98×139 mm
Gimbal weight: 452 g
Gimbal input voltage: 12 V
Gimbal stability system: 3 axis (pitch, roll, level)
Gimbal angular control accuracy Static: ±0.008° ； Dynamic: ±0.02° ; Anti-shake : ±0.008°
Gimbal controllable rotation range pitch：-110° to +60° ; level ：±150° ; roll ：±10°
Gimbal control speed pitch：30 °/s ; level：30 °/s
Camera lens pixel: 1200 million pixels
Camera focus time: 7~8 seconds
Camera sensor: 1/2.3 SONY IMX117 CMOS
Camera ISO range Video：100～3200 ; photo：100～1600
Camera video recording resolution: 4K 30 fps
Camera resolution: 3840×2160
Camera focal length: 6.7-134.5 mm
Camera zoom multiplier: 30 X optical zoom
Camera zoom speed: about 2.0 second
Horizontal camera Angle: 59.8 ° ~ 3.0 ° (wide Angle – telescopic)
Camera proximity: 5000mm (wide Angle – telescopic)
Camera video storage code stream: Max. 64 Mbps
Camera compression standard: H.264 / H.265
Camera supports file storage format: JPG/MP4
Camera supports memory card type: SD/SDHC/SDXC micro-SD card with maximum support of 128 G and transmission speed of Class10 or above or reaching uhs-1 rating

Sighting

Magnification: 3~9 times
Extent: 33 cm
Weight: 590 g
Pipe diameter: 25.4 mm
Objective: 40 mm
Exit pupil distance: 7~8 cm
Differentiation of line: Cross point differentiation
Differentiation of material: Metal Wire differentiation
Focus Mode: Objective lens focusing
Accommodation mode: Swivel lock hand mode
Lighting system:Red & Green double light
Regulating variable: one click a quarter of an inch from 100 yards away

Lidar ranging obstacle avoidance system

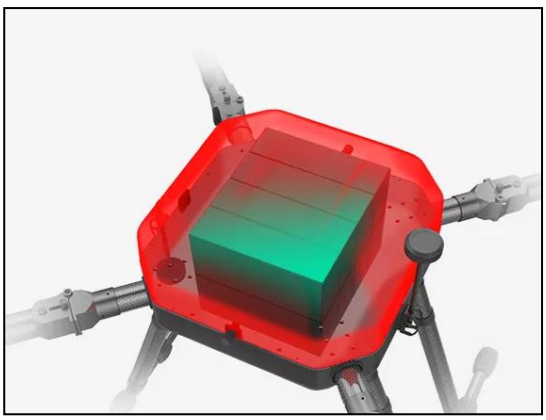
Distance measuring range: 100m
Range of obstacle perception: 3~15m(adjustable)
FOV: Level 20°; Vertical 3°
Survey frequency: 10kHz

Fire extinguishing system

Model of fire extinguisher launcher: CM60 airborne transmitter
Outside diameter of launcher tube: φ67 mm
Max. Outside diameter: φ 70mm
Emitter length: 1000 mm
Emitter weight: ≤ 1400 g
Fire system: CM60 rocket boosts ABC dry powder fire extinguishing projectile
Transmitter trigger voltage: 12V~24 V
Transmitter trigger current: ≥ 700 m A
Life of transmitter: ≥3 Years/100 Times

Fire extinguishing tank

Fire extinguishing tank material: HP295
Tank weight: 8.7 kg
Net dry powder content: 3 Kg
Filling pressure: 1.2 MPa
Installation: Hang up fast
Open mode: electronic fast
Powder spraying pipe Material: carbon fiber; Length: unfold4.8 m (minimum shrinkage is 1.2m)



Fire extinguishing System

Length: 995 mm
full weight: ≤3000 g
striking current: ≥ 700 mA
safe current: ≤150 mA
Initial emission velocity: ≤35 m/s
Max. range: ≤40 m
Single fire extinguishing capability: 9 m3 (Total flooding)

Fire extinguishing agent Species:
ABC super fine dry powder
Weight：≥1100g
Features: Fully sealed, waterproof, moisture-proof and non-explosive

Delay time for extinguishing agent injection:≥5 s
Life of fire system: 3Years

Remote control

Fuselage size: 65×174×62mm（L×W×H)
Weight: 970 g
Working frequency: 2.4 G
Working current：1000 mA
Signal effective distance: about 2Km (open, no occlusion, no electromagnetic interference)
Video output interface: HDMI
Power supply mode: Built-in lithium electricity 7.4V 6000mAh LiPo 2S
Mobile device support: For tablets or mobile phones

Ground Station / Portable

Ground Control Station is designed for controlling unmanned vehicles

Ground station is typically a software application, running on a ground-based computer, that communicates with your UAV via wireless telemetry.

It displays real-time data on the UAVs performance and position and can serve as a “virtual cockpit”, showing many of the same instruments that you would have if you were flying a real plane.

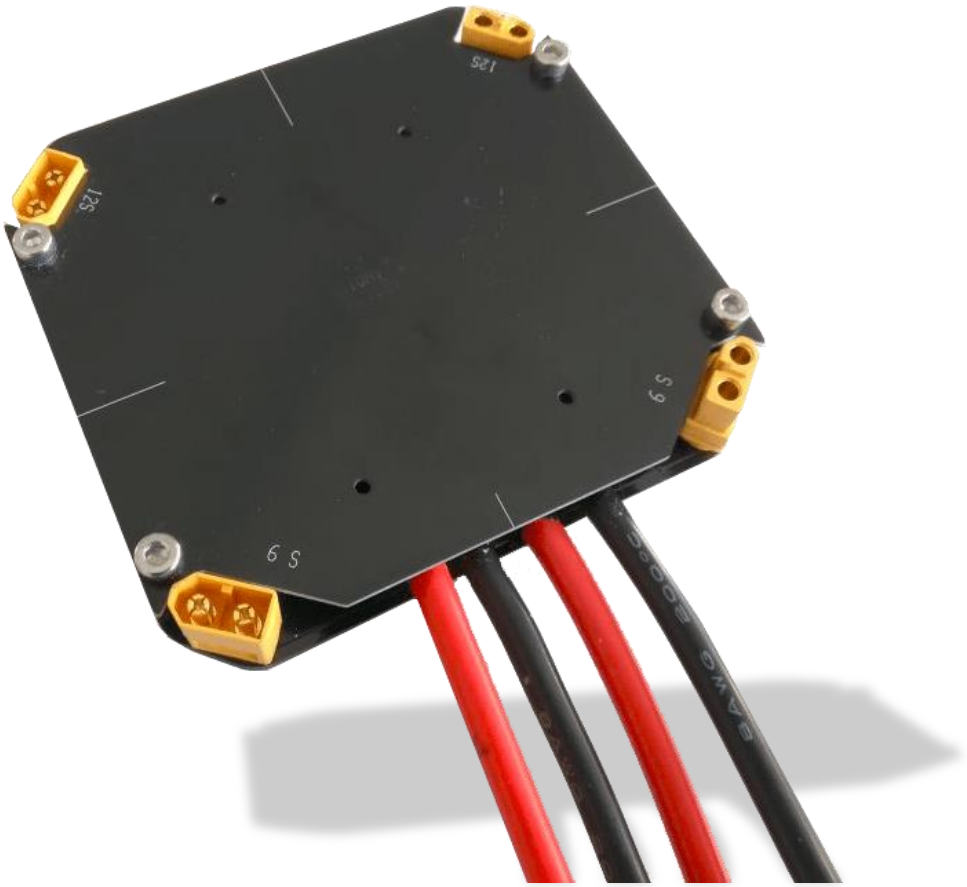
A GCS can also be used to control a UAV in flight, uploading new mission commands and setting parameters. It is often also used to monitor the live video streams from a UAV’s cameras. portable Ground Control Station (GCS) is a flexible and universal solution for controlling unmanned vehicles and payloads.

By using a unique, modular electronics compartment (MEC), application specific hardware can be quickly installed. This flexibility allows the GCS to be configured to control unmanned aircraft vehicles (UAV), ground robots, bomb disposal robots, remotely operated vehicles (ROV) and other robotic devices. The GCS can also be configured to control and monitor measurement and sensing equipment.

Specification:

Size: 462*256*70MM
CPU: Intel I7 7500U
Graphics card: Intel HD Graphics 620
Screen: Dual 13.3″ LED
Display resolution: 1920*1080
Touch screen: 10 points
Connector: 2*USB2.0/ 3*USB3.0/ 1*LAN/ 1*HDMI/ 1*MIC-OUT/ LINE-OUT/DC
Remote joystick： 2 Back to the Hall remote control lever
Gimbal Rocker: 2 Back to the Hall remote control lever
Channels: 14

Power Distribution Boards for 16L



Power Distribution Boards (PDB) are one of the simplest components on a Multi-rotor and therefore are one of the easiest to choose.

There are 3 main points that should be considered when choosing a PDB for your multi-rotor: Size and layout Voltages and Current Capability (on board voltage regulators).

Additional features It is necessary to have a good idea of what parts you will be using in your multi-rotor build in order to make sure that you choose a PDB that will have the right features and be able to support the power consumption of all the components.

Size is relatively straight forward, however is worth mentioning because PDB come in all shapes and sizes.

Some are made specifically for certain frames while the majority use a 30×30 standardized mounting.

Depending on the frame you have chosen, there may be a custom Power Distribution Boards available which may replace a Carbon component in the frame and greatly simplify the wiring and cleanliness of the build.

If your frame does not have a dedicated Power Distribution Boards available, you need to choose one that will suit your intended build.

This is where it is necessary to have a good idea of what other components you intend to use.

Hybrid Power System for drone Generator for Hybrid Drone

Hybrid Power System for drone FLY2400 generator is a high efficiency generator designed for multi-copters.

FLY2400 generator is only 4.2kg which is much lighter than any other generators that produce 2400w output power, so FLY2400 generator is five times the efficiency of other generators.

The continuous power output of generator is 2000w. An internal combustion engine consumes gasoline and spins a generator to ensure a 48V output.

Besides this, a 12S lipo battery package is also needed to be installed onboard to offer emergency back-up power for quick climbing and quick maneuvering.

With this generator, the max take-off weight can reach 19kg (according to your power system), and the max flight time is about 5 hours.

FLY2400 generator is suitable for those multi-copters whose power is still lower than 2000w even with 6kg generator system(including generator, fuel tank and 1L gasoline).

As for the fuel, the auto gasoline is available.

When the generator running, its noise level is about 80 dBA. But the noise has no effect if you talk 10 meters away from the drone. We also provide the silencer if you need which could reduce the noise to 60 Dba

.

Also maintenance is necessary for FLY2400 to keep its high performance.

The maintenance cycle is 50 hours. Accessories for generator maintenance are provided

Hybrid Power System for drone Generator for Hybrid Drone

Specifications:

Weight: 4.5kg
Size: 430x284x181mm (LxWxH)
Applicable models: Multi-rotors / VTOL Fixed Wing
Max take-off weight: 18kg
Power voltage: 12S
Fuel consumption: 600g/kW*h (Hovering 1.5L/h)
Working Temperature: -20℃-40℃
Theoretical ceiling (Altitude): 1000m
Petrol: 95# or above (petrol+2T lubricant two-stroke lubricants that meet JASO FC/FDIOS-L-EGD standards)

Main Features:

1. Integrated design of Start up and power generation, and the air start function can be realized without relying on external starting equipment.
2. The one-piece design allows for easy suspension in all types of Frame kit and a variety of mission load suspensions on the bottom.
3. No need charge preparation time, no complicated ignition action, it can quickly perform tasks.
4. The backup battery can provide power for emergency short-range return or forced landing in an emergency.
5. For light load service, additional fuel tanks can be added to expanded to flight time to 4-6 hours.
6. Quick and easy engine installation method, convenient to replace and maintain.

Package Included:

Hybrid powertrain x 1
6s 4000mah battery x 2
Starter x 1
Controller x 1
Spark plug wrech x 1 (Gift)
Petrol Proportional bucket x 1 (Gift)

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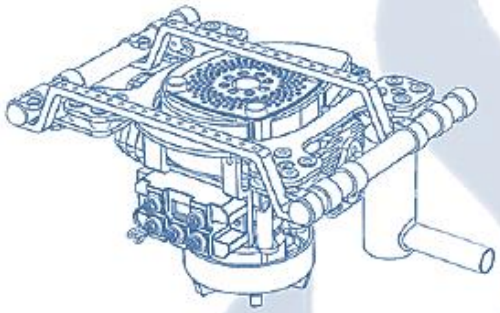
F2400 Gas-Electric Hybrid Power System

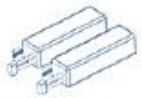
Manual



F2400

Packing Lists

Hybrid powertrain*1



6s 4000mah battery *2

Starter *1

Controller*1

Spark plug wrench*1 (Gift)

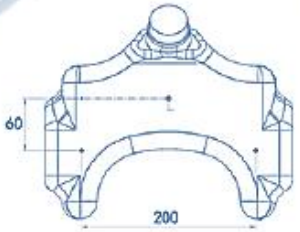
Proportional bucket*1 (Gift)

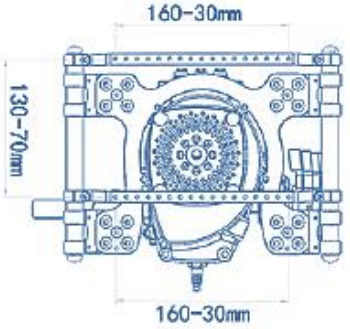
Specifications

Tital Weight	4.2kg
Power	2.0kW Continuous power/2.4kW Max power
Size	430*234*191mm (L * W * H)
Applicable models	Multi axis rotor/VTOL fixed wing
Max Take-off weight	18kg
Power voltage	12S
Fuel consumption	600g/kW·h (Hover 1.5 liters/hour)
Available ambient temperature	-20~40℃
Theoretical ceiling(Altitude)	1000m (standard atmosphere)
Fuel	95#Or above (petrol) +2Tlubricant two-stroke lubricants that meet JASO FC/FDIOS-L-EGD standards

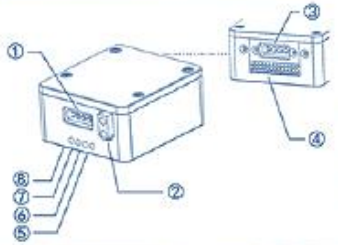
Preparations

1. Install





Controller Connection



① Starter Port (red) (Start engine)
② 48V Power Supply Port (Output should not exceed 3A)
③ Data Cable Port A (black) (Links to Engine and other equipment)
④ Data Cable Port B

⑤ LED -Red (Red always On-Flameout ; Red Flash - No Signal)
⑥ LED -Yellow (Yellow always On-Idle speed; Yellow Flash -abnormal)
⑦ LED -Green (Green always On-Operation;Non-operating state This lamp is not lit)
⑧ LED -Blue(Blue always On-Over 49.5V;Blue off - less than 49.5V)

Fuel

Fuel/Lubricant Proportion 25:1

(1) Add more than #95 gasoline to the reticle

(2) Add lubricant to the reticle

(3) Proportional bucket is convert to shake the fuel well.

Forbidden to mix lubricants of different manufactures and models. Otherwise it will cause serious blockage of carburetor.

Start-up

Figure 1

1、Press the carburetor until there are no bubbles in the blue inlet pipe, and oil circumfluence in the yellow return pipe. (Figure 1)

2、Connect the start-up controller, the system is powered on, the control switch in the idle gear position, the controller LED lamp is yellow, and the motor buzzed when powered on. (Figure 2)

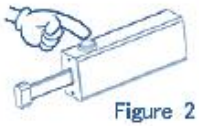


Figure 2

3、Press the starter switch,Release the engine when it starts. If pressing for more than 2 seconds does not start, close the damper, press the start switch for 1 second to absorb oil, and then open the damper to start the engine.Pull out the startup controller immediately after startup.(Oil absorption is required in cold weather after long time no use.Generally, it can be started directly)

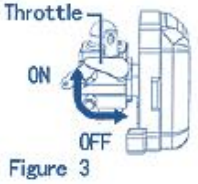


Figure 3

4、Excessive oil absorption will cause engine block. The spark plug needs to be removed ,then use Starter to race an engine and oil extraction.
If the motor can not work by pressing the starter button, please pull out the starter connector and reinsert to restart the program.

5、If the engine can not work, please refer to the error listing to troubleshooting .

Pre-start inspection

1、Check whether the exhaust pipe is firmly installed and whether the outlet connection is leaking.
2、Check whether the tubing is leaking
3、Check whether the fuel ratio is correct and whether the fuel is clean and impurities.
4、Check the position of control switch and whether the LED display is normal

Operation

1、Preheat the machine by keeping engine running for around 1min when cold boot it, while in a hot-boot, it won't be necessary.

2、When Control switch in operation position, controller LED display in "Green "lamp. (Attention! When the Startup controller is not unplugged, Please do not change to running state)

3、Observe blue lamp to know the controller bus voltage.
Blue lamp flash show the bus under voltage , Please keep running.
Blue lamp always On show the bus voltage reach the rated value, can initiator program to take off.

4、When flight, bus voltage will fluctuate up and down due to the rapid change of flight attitude.
If it is found that the bus voltage drops rapidly to below 45V, in order to ensure safety flight, please land immediately to check the fault.

5、The capacity and load of the batteries allocated determine the backup time of the spare batteries

Warning **Do not touch the engine and exhaust pipe when operation or within 5 minutes after parking , avoiding high temperature scald!**

Parking

After landing, Set the switch to idle position for one minute to make engine fully cooled(LED-Yellow lamp). Then set the switch to stall position(LED-Red lamp).

Or press the extinguishing button on the engine to park.
Clean the engine after using. To avoid accidents, please ensure that all remaining fuel in the tank is stored in other containers.

Troubleshooting

Can Not Boot

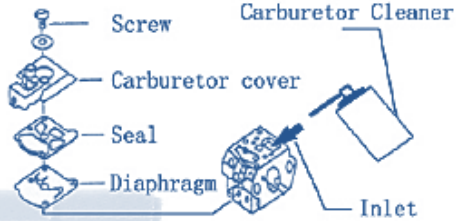
LED display	Troubleshooting items	Solution
RED	Control switch	Switch to idle position
No display	Cable interface	Re-plug, confirm it solid
Yellow	Check whether the choke is closed	Open the choke
	Check whether fuel supply pipe is damaged and Leakage	Replacement of fuel supply pipe
	1、Remove the spark plug to check if there is any gasoline infiltration 2、If the fuel supply is normal, put the spark plug on the engine housing and rotate the engine to observe whether the spark plug sparks dazzlingly bright.	1、Carburetor Blockage 2、Spark plug sparks dark or no spark, please replace the spark plug 3、Unqualified ignition coil, Please contact the manufacturer to maintain.
	Air filter blocking	Remove the air filter housing and clean the sponge filter core, and then reinstall it.

Operation Fault

	Reason	Solution
Fluctuation of Engine Speed and Insufficient Output Power	Fuel poor quality or long-term storage	Replacement of fuel
	Carburetor Blockage	Cleaning carburetor
	Air filter blockage	Clean Air Filter and Sponge Filter
	Bubbles in the fuel supply pipe	Check whether tubing is damaged and replaced it
	Controller unhealthy	Contact supplier
	Engine power reduce	
	Mechanical parts unhealthy	

Maintenance

Carburet



1、Check and removal of spark plug carbon deposition regularly. Check spark plug electrode interval, the normal value is 0.6-0.7 mm.

Spark plug model: NGK-CMR7H

2、Clean carburetor regularly. When operation, if insufficient fuel supply will cause engine overheating and shorten service life, even damage the engine seriously.

3、Check spare batteries regularly. If each battery has a voltage difference, please use a balanced charger to Voltage balance..

4、Please unload the spark plug after long-term nouse, Inject 10g-2T fuel into the cylinder, turn the engine five times before reinstall the spark plug.

Multi-rotor power configuturation Reference

F2400混合动力总成-适用多旋翼动力配置参考 (F2400 Hybrid Powertrain - Multi-rotor Power Configuration Reference)

电机 (Motor)	螺旋桨 (propeller)	轴数 (Number of axes)	电压V (Voltage)	最大起飞重量 (Maximum takeoff weight)	推荐起飞重量 (Recommended takeoff
EAGLEPOWER (鹰动力) UA90 KV120	28寸-30寸 (28 inches to 30 inches)	4	48	17.8KG	16.2KG
EAGLEPOWER (鹰动力) EA85 KV110	30寸-32寸 (30 inches to 32 inches)	4	48	18.3KG	16.8KG
DJI E5000 M10 KV110	DJI 2880 or UF2880	4	48	19.1KG	17.8KG
EAGLEPOWER (鹰动力) EA80 KV135	UF2272L or UF2478L	6	48	15.9KG	14.5KG
EAGLEPOWER (鹰动力) UA90 KV120	UF2478L or JXF2685	6	48	17.3KG	15.1KG
EAGLEPOWER (鹰动力) EA80 KV85	UF2788L or UF2880L	6	48	18.5KG	16.5KG
DJI E2000 6010 KV130	DJI 2170 or UF2280	6	48	14.6KG	13.5KG

Fire fighting drone

Why are drones not widely used to assist wildfire suppression?

At present, wildfire airspace is regarded by the government as “unmanned areas”.

People’s safety concerns are due to the lack of driverless traffic management systems and communication links with drone operators.

From multi-rotor aircraft to fixed-wing, many different types of manned aircraft are used for wildfire suppression, and collisions between drones and manned aircraft can be fatal to pilots and / or manned passengers.

Because of this concern, when unauthorized drones fly into wildfire areas without authorization, manned aircraft must be landed.

Once the UTM system is implemented and the drone service provider works with emergency personnel, both government concerns will be alleviated.

What is the difference between a drone in wildfire emergency response?

Although improper use will bring security risks, for further improving safety, drones can actually provide important support.

First, the drone can enter the air in just 30 minutes and start evaluating the affected area. In this way, emergency personnel can accurately know where the fire is, and it has spread, without letting anyone approach.

This can shorten the time between the fire and the first fire-fighting attack, so that emergency response personnel can deploy in advance when the fire spreads.

Through the use of payloads with thermal functions, dangerous hot spots can be identified, and the fire can be identified in real time in terms of direction and speed.

Since the thermal sensor is used, this operation can be performed even when fog or thick smoke hinder clear visibility.

UAV emergency response in the event of wildfire

As we all know, once a wildfire is ignited, it spreads at an average speed of 22 kilometers per hour.

It takes about 4 minutes to walk the firefighters, so the speed at which the firefighters can't exceed the speed of the spread of off-road fires, especially when the wind blows.

Normally, when a wildfire occurs, firefighters do not have enough time to go to the roadblock and block the road.

In such an emergency, the drone may be an amazing aerial tool, but the premise is that it must be used safely.

We can also add a Hybrid Power System For drone Generator