Rosefinch Technology

3.0KW Drone Tethered Power Station

Simple and Portable ☑

Constant voltage output ☑

Cable automated winch reel ☑

Drone hovering 24 hours no stop ☑

Be Leading Manufacturer and Solution Provider

2026-10-10

The "Drone Tethered Power System" - Rosefinch Technology is one of the leading manufacturers of drone tethering power station.
Rosefinch mainly engages in the R&D, production, sales of the drone tether power system. The system is compatible for all multi rotor drones with MTOW 3-120kg.

These products are used and deployed by armed forces, law enforcement, civil security, and private security in over 30 countries for event protection, perimeter surveillance, border protection, radio communications, long-duration health monitoring, emergency communication, traffic management, environment inspections, scientific research and many more.

Our products are qualified by CNAS with physical performance and electrical performance testing (EMC+LVD+EMF+RF) , and verified by CE, FCC, UL, RoHS.

We have always adhered to independent research and development of core technologies. The air module adopts a output voltage stabilizing circuit scheme, with a wide range of input and constant voltage output, which is different from the commonly used Vicor power supply unstable voltage scheme on the market. It can ensure that the backup battery in parallel with it has no charging or discharging phenomenon, no battery capacity loss, and is only used as backup battery for landing, achieving true long-term tethering flight without battery capacity loss; The automatic cable reel in & out control adopts a difference between the reel out tension and reel in tension, and an adaptive torque transformation scheme, chieving true automatic tether cable reel in & out function without human intervention.

Our Mission:

To provide customers with the best quality, fastest service, and most cost-effective UAV tethered station with professional skills.

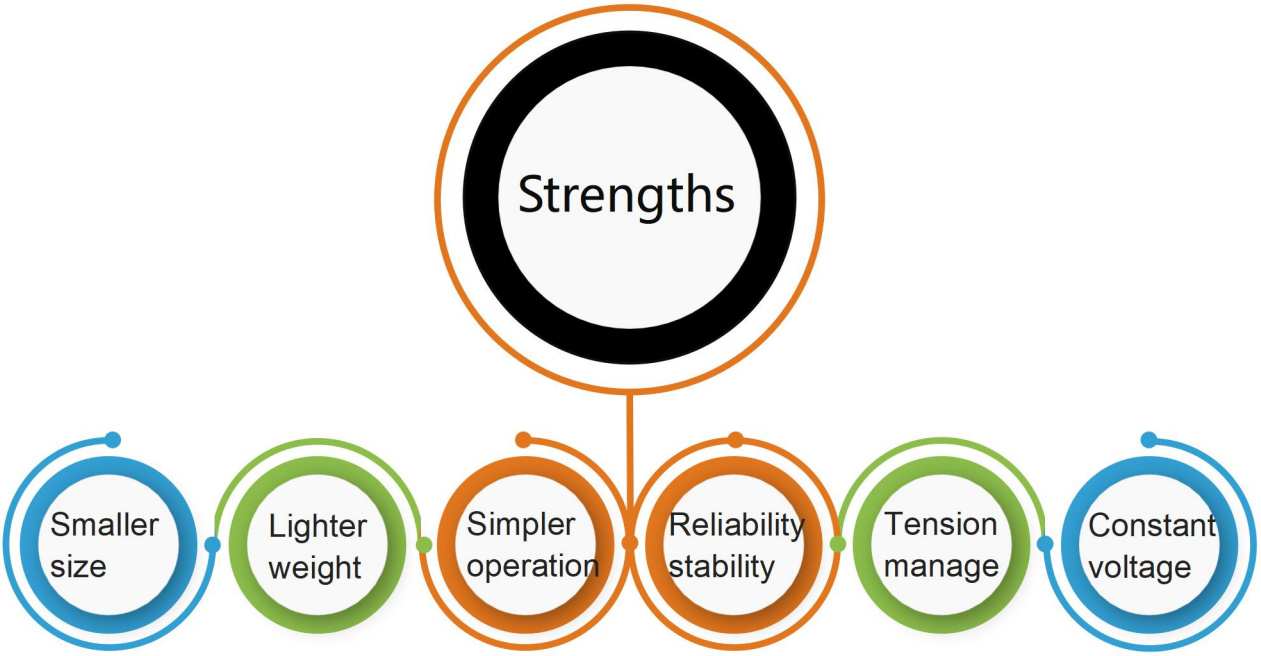
Our Vision:

Becoming one of the top providers of UAV tether power system solutions.

Our Values:

Win-win with all upstream and downstream cooperative partner.

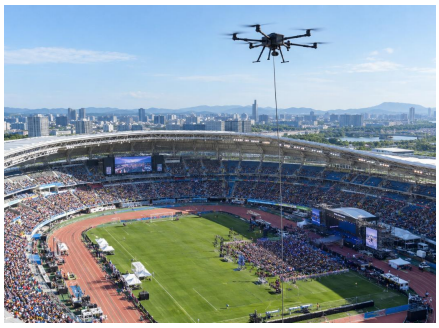
Why Choose US?



The applications of Tethered Drone

The tethered UAV can be applied in situations and environments that require long-time operation, making up for the shortcomings of short endurance time, faster power consumption with more mounts, and the need for frequent battery replacement. It expands the industry application of UAV.

Traffic Monitoring


Large Event Scheduling

Emergence Lighting

Forest Fire Prevention

Disaster Site Rescue

Building Cleaning

Long Term Filming

Live TV Aerial Photography

Communication Relay

Border Monitoring

Industrial Inspection

Maritime Search & Rescue

3.0KW Universal Tethered Power System Ver. 4.0

1. Adapted to drones

1). Support flight altitude: ≤100m (equipped with 110m professional tethered cable, including 10m redundant length).
2). Support takeoff weight: 10-15kg (drone power efficiency varies, this data is for reference only).
3). Supporting flight duration: ≤24h (the system can support working duration, which depends on the structure and electrical fatigue resistance of the drone).

2. Typical characteristics

2.1 Lightweight and Portable, Fast deployment

Adopting a lightweight design, it is compact in size, lighter in weight, and can be easily carried by one person. It supports rapid deployment in the field and meets the needs of mobile missions.

2.2 Multiple Protections, Safe and Reliable

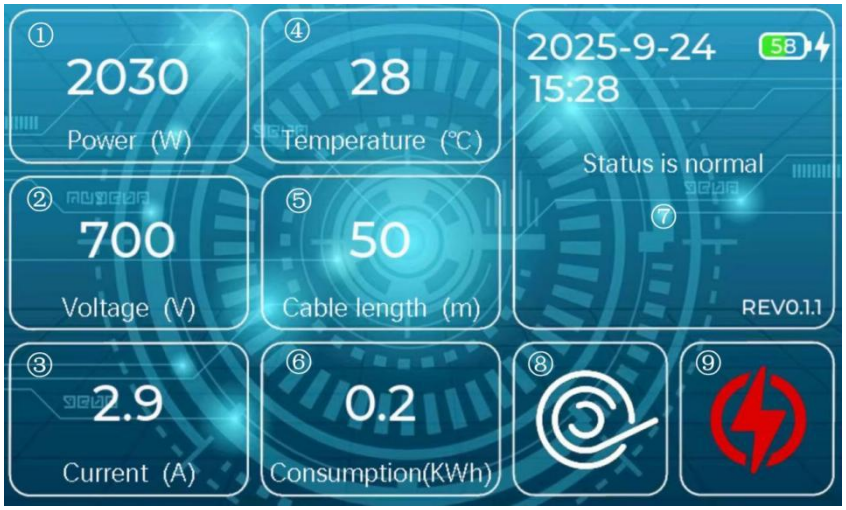
Electrical isolation: design with complete separation of AC high voltage and DC low voltage electricity.
Equipped with multiple protection mechanisms such as input overvoltage/undervoltage, output overcurrent/short circuit, etc., automatic fault detection and recovery ensure stable system operation.
Ultra High Voltage Withstand Standard ≥ 3000VDC;

2.3 Low Voltage Button to Start AC Input, No Need AC Air Switches, Improve The Safety.

Adopting low-voltage soft starting mode, replacing traditional circuit breaker starting, with ultra-high waterproof rating far superior than air switches, further improving the safety of isolated AC contact use.

2.4 Touch Screen Display 4.3-inch:

Real time display: electrical parameters such as real time power/voltage/current/temperature/cable length/power consumption/battery capacity/alarms



2.5 Stable Power Supply and Long-lasting Battery Life

The onboard module provides constant voltage output, that avoids ineffective charging and discharging losses, protect battery lifespan, and always maintain a fully charged standby state during operation.

2.6 Intelligent Winch Automated Control System

Automatically follow the takeoff and landing of the drone to retract cables.

Fully automated operation process, unmanned aerial vehicle takeoff and landing do not require manual operation throughout the entire process, reducing operational barriers and improving task efficiency.

2.7 Worry-Free Power Cut Off, Intelligent Cable Retraction

Built in backup power supply, it can automatically switch to backup power mode in case of sudden power outage, completing emergency wire retraction and avoiding the risk of cable entanglement.

2.8 Intelligent Communication Management System

Wired communication between GCS and ground power station: USB Type-C high-speed transmission.

Wireless communication between GCS and ground power station: Bluetooth 5.0 low-power connection.

Optic fiber wired communication between GCS and drone: Optic fiber. Achieve fast data transmission.

Ground module

Air module

3. Parameters

Items		Technical parameters	
Model		TPS55M-3K Ver. 4.0	TPS110M-3K Ver. 4.0
Cable length		55M	110M
Ambient temperature		-20～45℃ (working)，-40～65℃ (storage)	
Relative humidity		10～80%RH (working)，5～90%RH (storage)	
Altitude		≤3000m	
Ground power module	Input voltage	190～240Vac wide range input, single-phase 220Vac，frequency 50/60Hz	
	Output voltage	700～750Vdc adjustable	
	Output power	≤3500W (Rated Long-Time Output)	
	Take-up and payoff speed	0～2m/s, adjustable	
	take-up and payoff tension	0～15N, adjustable	
	Interface	Input: CNLINKO LP20-3P; Output: CNLINKO LP12 aviation plug,Type-C wired communication, fiber optic FC port (optional)	
	Button and switch	AC switch, front lighting switch, backup battery switch	
	Protection level	IPx4 (Level 4 Waterproof grade actual tested)	
	Backup battery for retract cable	Nominal 14.8V, fully charged 16.8V, 51.8Wh, 3500mAh 108*76*25.2mm, 346±6g	
	Size	D360*W186*H268 ±0.5mm, excluding foot pads and external accessories	
	Weight	12.5 ±0.2kg, including 110m cable	
Cable	Material	Alloy lightweight high-temperature resistant aviation wire, composite fluoroplastic insulation layer, high modulus tensile aviation grade fiber woven layer	
	Fiber optic communication	The tethered cable is an optoelectronic composite cable containing tightly wrapped single-mode fiber with optional fiber optic communication.	
	Current	5A rated	
	DC resistance	6.8±0.2Ω, 100m@20℃loop	
	Resistance Tensile strength	≤100kg, resistant to repeated reaction and release times≤ 1000	
	Insulation strength	≤3000Vdc, 1min, no breakdown	
	Cable length	Standard equipment 110m, optional 55m; Fiber optic with FC connector (optional).	
	Outer diameter	3.5±0.1mm	
	Weight	13.0±1g/m	
Air module	Input voltage	580~810Vdc wide range input	
	Output voltage	25V or 50Vdc±1%, constant voltage output	

	Output power	3000W (rated long-term output)	
	Protection function	Input overvoltage and undervoltage protection Output overvoltage, overcurrent, short circuit, and over temperature protection	
	Isolation voltage	3000V (Vin-Vout), 1min, leakage current ≤ 5mA, no breakdown, flashover, or corona phenomenon	
	Installation method	Reserved installation holes, fixed with screws	
	Heat dissipation method	External fan for active cooling, reserved air ducts for forced air cooling	
	Interface	Input LP12-3P-F*1, output XT90-M*2	
	Protection level	IP54 actual tested	
	Size	Maximum outline size: 160*94*49 ±0.5mm, excluding sliders and connectors	
	Weight	995 ± 10g, excluding sliders, external connectors, and wires	
Packing	Size	550×450×450±5mm (Aviation Hard Size)	
	Weight	22.0±0.5kg	23.0±0.5kg

1. Unless otherwise specified, the above data are all tested at Temp.=25 ℃, humidity<75%, nominal input, and rated load.
2. Due to space limitations, there is incomplete data in the sheet. If necessary, please contact our sales personnel to obtain it.

Precautions For Use

1.It is strictly prohibited to touch and tie cables without protection when powered on. The cables transmit high voltage electricity. Although they have an insulation layer and are resistant to high voltage breakdown, there is still a risk of high voltage leakage in humid environments or under conditions such as wear and tear that may occur during use.

2. The UAV must be equipped with batteries with sufficient capacity to safely return to the aircraft at a certain altitude and be correctly connected to the circuit (it is recommended to be directly connected in parallel with the onboard power supply). Safe emergency landing protection measures should be set up to ensure safe landing in the event of a tethered power outage.

3.When using the backup battery, it should be kept fully charged. The air model does not have a charging and discharging management function. When the battery capacity is low, it will passively charge the battery with high current, causing a certain degree of damage to the battery and may cause the air module to fail due to overcurrent protection upon startup.

4. It is strictly prohibited for unmanned aerial vehicles to fly at ultra-low altitudes for a long time after being powered on. If there are more than three layers of tether cables left on the winch inside the box, the poor heat dissipation effect of the inner layer may cause overheating and damage to the tether cables. If necessary, please make sure to pull the tether cable out of the tether box in advance and arrange it in an orderly manner.

5. It is strictly prohibited to step on and poke the cable, as it may cause wear and tear of the cable, leading to leakage of electricity. It is strictly prohibited to bend or even fold the tether cable significantly, prevent high-voltage leakage or fiber breakage. The cable is not covered by the warranty.

6.The line length displayed on the display screen is not the actual flight altitude of the drone. The length of the cable pulled out before the system is powered on has not been calculated, and there may be some errors in the program's meter measurement.

7.The UAV must maintain a constant speed for ascent and descent, and its speed should be consistent with the system's reel in/out speed as much as possible. Rising too fast can cause significant cable cycloids to cause significant pulling force on the drone, and falling too fast can cause cables to pile up on the ground.

8. When the UAV lands and returns, its landing point must be consistent with the takeoff point, otherwise due to the constant tension of the cable, the drone may overturn during landing. If the accuracy of manual operation or automatic return is insufficient, it is necessary to set the safe distance of the tether box to be greater than the radius of the maximum range of return.

Customization

The products listed in the sample booklet are our company's standard products, which should meet the general application needs. If you have small adjustments in terms of functionality, performance, and environmental characteristics, you can contact our relevant personnel. We will try our best to evaluate and adjust according to your requirements.

Our standardized products have undergone extensive and long-term testing and have been validated in multiple applications. The software, hardware, and structure have been optimized and selected after multiple iterations and modifications, with a high level of maturity. At the same time, the coverage range of standard product series models also meets the common conventional application needs in the current market, and customized products inevitably have a certain degree of design and development. Therefore, in unnecessary cases, we do not recommend that you propose technical requirements that exceed the standard product indicators when selecting.

However, if it is necessary to propose requirements beyond the existing product technical indicators due to project requirements or actual usage requirements, we will also wholeheartedly serve you and customize a product that meets your needs to the greatest extent possible.

The core technology of our company's products, as well as most of the hardware circuits, software codes, and structural designs, are independently designed and developed. In the process of product market application, we constantly collect effective information and data to optimize and iterate existing products to the maximum extent. In addition to standard products, we also have a large amount of technical reserves and redundancy in hardware, software, and structure, and some circuits or products have entered the testing and testing stage.

Perhaps what you need is exactly what we are researching or already testing and experimenting with, so we also welcome your customized needs. We can engage in technical exchanges with you, seek common progress, strive to make better products, and contribute to the development and prosperity of the tethered UAV industry.

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