TP-FlyCart 100 Tethered Power Supply System



Aircraft not included

1. Project Overview

The TP-FlyCart 100 drone tethering system is designed for the DJI FlyCart 100 rotary-wing drone platform. The system consists of a sky-side module and a ground-based tethering power box. Using tensile-resistant, high-temperature-resistant wires, electrical power is transmitted from the ground to the drone's sky-side module, where it is converted into the DC voltage required by the drone, thereby providing continuous power supply. The system can be directly connected to a generator, an AC380V industrial power supply, or an energy storage system, enabling the drone to operate for extended flight times with the aircraft and site power supply matched to the system.

TP-FlyCart 100 tethering system: overcoming operational limitations of the DJI FlyCart 100

1. Aerial endurance — Once integrated into the tethered system, the drone can operate without being constrained by battery capacity, thereby meeting its requirements for extended flight endurance.

2. System components — The kit uses the TP-T25 ground station and TP-P24 airborne module. The aircraft is not included.

Key Technical Parameters

DJI FlyCart 100 Drone

	project	technical parameter
	Diagonal wheelbase	2330mm
	Expanded dimensions	3220mm×3224mm×975mm
	Folded dimensions	1105mm×1265mm×975mm
	Maximum wind resistance rating	12 m/s (Force 6 wind)
DJI FlyCart 100	operating ambient temperature	-20℃ ~ +40℃
	Continuous flight duration	≥12 h (when powered by a tethered power supply system)
	Aircraft reference version	DJI FlyCart 100, mainland China version; aircraft not included

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	Aircraft weight (specified exclusions)	55.2 kg with lifting system / 60.2 kg with winch system; excludes batteries, dual-battery compartment, accessories, lifting rope and hook
	Regional maximum takeoff weight	149.9 kg (mainland China version only)
	Battery-powered reference flight time	14 min with two batteries / 7 min with one battery (emergency mode)
	Dual-battery lifting-system load limit	65 kg at sea level; includes dual-battery compartment, accessories, lifting rope and hook

Mainland China aircraft reference only. Battery flight-time tests use 149.9 kg takeoff weight, sea-level altitude, 25°C, no wind and constant 15 m/s flight until 0% battery. These battery test results are separate from tethered-system operation. International models have different specifications; confirm the aircraft version and applicable operating limits.

TP-FlyCart 100 Series Tethering System

TP-FlyCart 100 Aerial Power Module

	project	technical parameter
	size	296 × 201 × 127 mm ±1 mm (L × W × H)
	weight	≤9.5 kg
	output power	Maximum 24 kW
	input voltage	850–1000 VDC
	output voltage	58.5 VDC
TP-P24	output	MAX 400A
	Heat dissipation method	forced air cooling

TP-FlyCart 100 Ground-Powered Equipment

	project	technical parameter
	System cabinet dimensions	620 × 535 × 575 mm (L × W × H; including handle and panel)
	Single cable length	120m
	weight	55-60kg
	output power	MAX 25KW

	External power supply	AC380V
	Maximum line winding speed	≤2m/S
TP-T25	work pattern	Passive line release / Active line retraction
	Power supply output voltage	1000Vdc

2. Installation and Usage Guide for the TP-FlyCart 100 Series Power Supply System

2.1 Operating Procedure

1. Remove the DJI FC100 drone, extend all propellers, and secure all fastening clips.
2. Remove the TP-P24 module, then complete the wiring modifications and securing of the module to the drone.
3. Install the battery into the battery compartment; ensure the battery is fully charged. Prior to winter operations, preheat the battery. Turn on the remote controller, connect the drone battery power supply, and use the remote controller to check the battery voltage and other relevant parameters. Once the status is confirmed to be normal, use the eight-button unlock mechanism on the remote controller to initiate takeoff. Before commencing actual operations, perform a no-load test flight: use the front and rear control sticks to test the aircraft's attitude and various functions, ascend to a height of approximately 5 meters, and conduct a brief test flight (duration not exceeding 30 seconds). Upon completion of the test flight, land the drone and power off the battery.
4. Connect the TP-T25 tethering box to the power aviation plug; the other end of the cable may be connected to the power distribution box or a generator. The TP-T25 tethering box operates on a three-phase, four-wire power supply system, with strict differentiation between the live wire and the neutral wire (labeled "N"); the front-end power equipment must provide stable power output sufficient to meet the overall system requirements. When using a generator, verify the fuel reserve in advance. Connect the tethering box cables to the

TP-P24 airborne module and securely fasten the load-bearing points of the hooks.

5. Power on the drone battery, wait for the drone to complete its satellite acquisition process, then check the parameters displayed on the remote control—such as the number of satellites and battery voltage—and only proceed with takeoff once the takeoff conditions are met.
6. Use the remote control's inner button to unlock and take off; before takeoff, verify that the surrounding environment is safe and free of obstacles such as people or trees. Once the drone has ascended to a height of 5–10 meters, activate the high-voltage power supply of the ground-based TP-T25 tethering box; once the power supply stabilizes, the drone shall continue its ascent operation.
7. During the descent phase, the on-site operators continuously monitor the drone's attitude and control the aircraft to descend slowly. Except for the drone pilot, all other personnel remain away from the descent area.
8. After the drone has landed, first turn off the high-voltage output of the tethering box, then turn off the drone battery, unplug the battery connector, and disconnect the aviation plug of the tethering cable.
9. Cable management storage box: prevents cables from dragging and rubbing against the floor during the cable retraction process, thereby avoiding wear and damage to the cable jacket.
10. Fold the drone's propellers, install propeller protective covers, and place the entire unit in an aviation storage case for storage.
11. Regularly perform cleaning, maintenance, and upkeep on drones and tethered boxes.

III. Precautions

DJI FlyCart 100 Drone

1. The aircraft is not included with this tethered power system. The purchaser supplies the aircraft and arranges its aircraft insurance and third-party liability insurance.

2. After unpacking and assembling the aircraft, log in to your registered ground station account to activate the drone-related equipment.
3. The drone includes a one-year RTK usage license; after the service expires, the user must renew the license independently.
4. During flight operations, if the system indicates magnetic compass interference, the compass shall be recalibrated in accordance with the applicable specifications; in cases of severe environmental interference, forced takeoff operations are strictly prohibited, and any associated safety risks and liability for accidents shall be borne solely by the user.
5. The battery must be fully charged prior to each flight, and the onboard power supply shall be operated in strict accordance with the operational specifications. High-voltage power supply shall be activated at an altitude of 5 m during takeoff, and the high-voltage power supply shall be deactivated upon the drone's steady landing; this practice ensures a sufficient safety margin and reduces the risk of damage to the downstream components of the onboard power supply caused by the back EMF of the motor; such damage shall not be covered under the warranty.
6. In the event that the aircraft loses control during flight, immediately disconnect the main power switch of the tethering box, cease high-voltage output, and execute an emergency forced landing of the drone; the landing area must be kept away from populated areas.
7. Prior to each operation, conduct a comprehensive inspection of the overall condition of the drone to ensure that the motors, blades, and all connecting components are securely fastened; upon completion of prolonged operation, perform a visual inspection and maintenance of the entire unit.
8. The drone is externally procured equipment; in the event of a failure, we may assist the purchaser in contacting the original manufacturer to coordinate resolution measures.

TP-FlyCart 100 Series Tethering System

1. Before each use, inspect the cables of the TP-FlyCart 100 series retention

system to ensure that the outer sheath is free of damage or cracking.

2. During transportation, the securing equipment shall be placed inside an aviation crate for protected transport.

3. During actual operation, ensure that the tie-down system provides adequate dust and waterproof protection.

4. In the event of an emergency (e.g., drone loss of control), prioritize disconnecting the power supply.

5. Given the high output power of the front-end load, all cables in the tethering box must be fully deployed prior to operation to facilitate current flow and ensure effective heat dissipation under elevated temperature conditions.

6. When operating the TP-FlyCart 100 tethering system under high voltage conditions, operators must wear insulating gloves if they come into contact with the cables, thereby ensuring operational safety.

7. After completing the installation of the TP-T25 device, when initiating cable collection, do not drag the cables across the ground; avoid stepping on stones or sharp objects on the ground to prevent damaging the cables.

Supporting materials for the assignment

On-site operations must be equipped with: warning tape, safety helmets, high-visibility vests, and dry powder fire extinguishers.

Equipment maintenance, storage, and transportation

Storage and Transportation Requirements

Prior to transport or storage, the drone battery must be removed from the aircraft and stored separately; the battery must not be placed in close proximity to heat sources or flammable and explosive materials.

Store in a dry environment; do not place the product in areas prone to leakage or high humidity.

If the battery has not been used for more than 10 days, it should be discharged to

40%–65% capacity before being stored; prolonged storage with the battery at full charge or completely discharged is prohibited, as this may cause cell damage due to over-discharge, which is irreversible. It is recommended to complete a charge-discharge cycle every 2–3 months to maintain battery performance. In winter, batteries must be preheated in advance; otherwise, insufficient battery activity may prevent the aircraft from being unlocked for takeoff.

maintenance overhaul

Inspect and maintain the complete system after every 20 take-offs and landings or every 20 hours of tethered operation, including checks for loose or detached screws. If unused for more than one month, store it in a dry, well-ventilated place.