

Product Manual

TP-T7



Operation Instruction Manual of the Tethered Box Control System

1 Tethered box system

1.1 System Introduction

The TP-T7 type portable automatic retractable system for tethered drones mainly includes: a retractable winch and a tethering box body, and integrates a tethering cable and a tethering ground power supply. It mainly provides functions such as wired power supply, information transmission, and cable retraction and release for tethered drones. The retractable winch mainly includes a system box body, a main frame, a cable storage reel, and a control circuit.

1.2 Main Technical Parameters

NO.	Item	Technical Parameter
1	Main Body Dimensions of the System Box	425mm*322mm*403mm (length, width and height)
2	System Box with Handle Dimensions of the Control Panel	460mm*355mm*420mm (length, width and height)
3	Length of a Single Cable	120m
4	Weight	28kg±0.5kg
5	External Power Supply	AC220V
6	Maximum Cable Retraction Speed	not less than 2m/S
7	Working Mode	Passive wire releasing / Active wire winding
8	Power Output Voltage	DC750V
9	Maximum Power Output of the Power Supply	7000W
10	Recommended Power of the Onboard Power Supply	≤5KW



1.3 Instructions for Use

1.3.1 Instructions for the Tethering Box Panel:

- 1) Main power circuit breaker: It serves as the main switch for all electrical components, including the control power supply of the tethering box and the main power for tethering;
- 2) Main power switch button: A switch button for supplying power to the aircraft's power system. After pressing it, the system's high-voltage direct current is energized, outputting a direct-current high voltage of 750V to supply power to the drone's on-board power supply;
- 3) Main power switch indicator light (integrated in the ring light of the main power switch button): It is used to indicate the power supply status of the tethering box;
- 4) Torque adjustment knob: It is used to control the magnitude of the wire-winding torque;
- 5) Transparent panel: It is used to visually observe the length status of the cable on the winch.
- 6) Information displayed on the liquid crystal screen:
 - ◆ Output voltage: Displays the current DC voltage value output by the ground power supply
 - ◆ Output current: Displays the current DC current value output by the ground power supply
 - ◆ Output power: Displays the current output power value of the ground power supply
 - ◆ Input voltage: Displays the current DC voltage value input to the ground power supply



输出电压: 749.9 V
输出电流: 0.1 A
输出功率: 0 W
输入电压: 214.1 V

1.3.2 Wiring Instructions

1) Connect the mains power or the generator to the tethering box using the power cord provided in the assembly. Connect one end of the aviation plug directly to the aviation socket on the tethering box, and the other end can be directly connected to the mains power or the generator;



2) The high-voltage cable output of the tethering box is an XT90 connector. Connect the connecting cable to the on-board power supply of the drone as shown in the figure below, and secure the load-bearing hook properly (the pull wire of the load-bearing hook bears the force);



1.3.3 Operation Instructions

1) When starting the operation, first set the torque adjustment knob to the minimum level. Then, turn on the main circuit breaker to power on the system. At this point, the display screen on the display panel will light up;

2) When power needs to be supplied to the drone, press the “Main Power Switch” button. The cooling fan of the tethering box will start working, and the “Main Power in Operation” indicator light will stay on steadily. The display screen will show the current output voltage, current, and power of the main power supply through the cable. Once the system is under load and current flows, the indicator light will start to flash rhythmically, indicating that power is being supplied to the drone;

3) When the drone is about to take off, set the torque knob to the minimum or add a bit of torque if it's windy. Let the drone pull out the cable. When retracting the cable, adjust the torque knob gradually from a low to a high setting to synchronize with the drone's descending speed. Alternatively, you can set the appropriate torque from the start to keep the cable under constant tension. When the drone releases the cable, it can pull the cable out forcefully and hover. During landing, the cable will retract automatically due to the tension;

4) After completing the mission, first turn off the main power switch to cut off the high - voltage DC power. Then, retract the remaining cable to prevent accidental electric shock. Finally, turn off the main power switch and unplug the power cord.

1.3.4 Precautions

1) Before using the equipment, make sure to place it on a level surface to keep it in a relatively balanced state;

2) Operators must wear insulated gloves to prevent accidental electric shock;

3) When adjusting the speed control knob, turn it slowly from the minimum to the desired level. Avoid suddenly setting it to the maximum;

4) After finishing the cable retraction and extension operations, wind up the power cord and store it in the box. Do not drag it on the ground;

5) Avoid dragging the tethering cable on the ground during use to prevent it from fraying. Check the ground for stones or other sharp objects that could cut the cable.