# Product Manual

## TP-T16



**The TP-T16 Tethered System** mainly consists of a winch reel, tethered ground power unit (GCU), and an integrated tether cable. It provides wired power supply, data transmission, and automatic cable management functions for tethered UAVs.

The winch reel includes the system enclosure, main structural frame, cable drum, and control circuitry, all designed to ensure reliable and efficient deployment and retraction of the tether.

## Main technical parameters

| Number | Specifications | Value |
|---|---|---|
| 1 | Main Enclosure Dimensions | 472mm*427mm*497mm(L×W×H) |
| 2 | Enclosure with Handles & Control Panel Size | 515mm*466mm*514mm（L×W×H） |
| 3 | Single Tether Cable Length | 120m |
| 4 | Weight | 49kg±0.5kg |
| 5 | Input voltage | AC380V |
| 6 | Maximum Cable Retrieval Speed | ≤2 m/s |
| 7 | Operating Modes | Passive pay-out / Active retrieval |
| 8 | Power Output Voltage | DC1000V |
| 9 | Maximum Power Output | 16kW |
| 10 | Recommended Drone Power Rating | ≤16kW |

Nominal input: 380 VAC, 50 Hz. 400 VAC, 50 Hz grids are within the normal input range. Standard maximum rewind speed is ≤2 m/s; faster rewind requires a custom configuration.



| | | |
|---|---|---|
| Button Description | Main Power Switch & Rotary Torque Switch | High Voltage Output Start/Stop Cable Retrieval / Stop |
| System Operation Interface Instructions | After turning on the main power breaker (air switch):<br>1.In the system operation interface, turn the rotary torque switch clockwise to start automatic cable retrieval. While in automatic retrieval mode, turn the rotary torque switch counterclockwise to stop automatic cable retrieval.<br>2.After the device is powered on, press the main power button to activate the system; the indicator light will turn green. | |

1. To operate the TP-T16 tethered power unit, a three-phase AC power supply is required. During normal operation, the onboard power module must be installed on the drone. Connect the output end of the tether cable to the drone's onboard power module. The hook must be securely fastened to the load-bearing plate. The high-voltage output cable from the tethered power unit features an XT90 connector, which should be connected to the onboard power module as shown in the diagram below. Ensure that the load-bearing hook is properly secured, so that the tension is supported by the hook through the tether cable.



1）During operation, first turn the torque adjustment knob to the lowest setting, then turn on the air switch. The system powers on, and the display panel lights up.

2）When it is necessary to supply power to the UAV, press the "Main Power Switch" button. At this time, the cooling fan in the tethered unit starts running, the "Main Power Running" indicator light stays on, and the display shows the current output voltage, output current, and power of the tether cable. When the system is under load and current flows, the indicator light starts breathing (pulsing). At this point, the UAV is powered.

3）When the UAV is ready to take off, keep the torque knob at the lowest setting or slightly increase the torque (in windy conditions). The UAV will pull out the tether cable during ascent. When retrieving the cable, gradually increase the torque knob from low to high to match the UAV's descent speed. Alternatively, set the torque to an appropriate level from the start to always

maintain cable tension, so the UAV forces the cable out and hovers steadily. During landing, the tension in the cable allows automatic cable retrieval.

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



**Product Maintenance**

1. Storage and Transport 1）Before transport or storage, be sure to remove the airborne module and UAV battery from the UAV and store them separately. Never place UAV batteries near heat sources or flammable/explosive materials. 2）Keep the storage environment dry. Do not place UAV batteries in areas where water may leak or with high humidity. 3）If the tethered equipment will not be used for more than three months, the recommended storage temperature is 22°C to 28°C. Never store the tethered equipment or UAV batteries in environments below -10°C or above 45°C. 4）If the UAV battery will not be used for more than 10 days, be sure to discharge it to 40–65% for optimal storage. Do not leave the battery in a fully discharged state for long periods to avoid over-discharge damage to the cells; otherwise, the battery may become unusable. It is recommended to recharge and discharge every 2–3 months to maintain battery health. 5）The default cable length of the TP-T16 tethered power unit is 120 m. During normal operation, extend the cable by 50–60 m. When the UAV is hovering, ensure the cable exits the outlet centrally. When the equipment is powered on, wear insulated gloves if touching the power cable. 6）During transport, the tethered power unit must be shock-protected. If internal screws become slightly loose, it is considered normal.

2. Maintenance

After every 50 takeoffs/landings or 20 operating hours, inspect and maintain the tethered power unit to ensure proper function.

Check if any parts of the tethered power unit have suffered strong impact and verify that all moving parts still operate smoothly.