TP-Matrice M400 Tethered Lighting System



1. Project Overview

The TP-Matrice M400 tethered lighting system is designed for the DJI Matrice 400. The standard lighting configuration includes the TP-T-M400 ground tether unit, the TP-P-M400 onboard power module, and four TP-A200 lamps; an eight-lamp configuration is optional. The TP-P-M400 supplies the aircraft bus at 52 ± 2 VDC, while the lamps receive 700–750 VDC through a dedicated high-voltage pass-through supplied directly by the ground tether unit. The system accepts 220 V AC mains, a compatible generator, or an energy-storage source for long-duration tethered operation.

TP-Matrice M400 tethering system – breaks through the operational limitations of the DJI M400

1. Flight Time – Upon deployment of the tethering system, the UAV is no longer constrained by battery capacity, enabling it to meet extended flight duration requirements.

2. Safety – In restricted flight zones, crowded areas, or other hazardous environments (e.g., areas with flammable or explosive materials), tethered drones can minimize risks while maximizing mission effectiveness.

Main Technical Specifications

DJI M400 Drone

	project	technical parameter
	Diagonal wheelbase	1070mm
	Unfolded dimensions	980mm*760mm*480mm
	Folded dimensions	490mm*490mm*480mm
	weight	9.75 kg (including battery)
	maximum take-off weight	15.8kg

	Maximum flight time	59 minutes
	Maximum wind resistance rating	Level 7
Matrice M400	operating ambient temperature	-20℃ ~ +50℃
	Operating endurance	Long-duration tethered operation

TP-M400 Fixed-Base System

Matrice M400 Lighting Lamp

	project	technical parameter
	Per-lamp dimensions	125 × 45 × 20 mm (L × W × H)
	Per-lamp weight	145 g
	Lamp power / quantity	375 W each; 4 standard, 8 optional
	Adjustment range	180° adjustable
	Lamp input voltage	700–750 VDC
TP-A200	Light source	COB
	Cooling	Forced-air cooling

Matrice M400 Air Power Supply Module

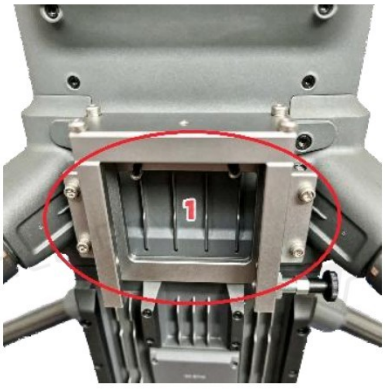
	project	technical parameter
	Dimensions	170 × 108 × 58 mm (L × W × H)
	Weight	1,000 ± 50 g
	Maximum output power	3,000 W
	Input voltage	700–800 VDC
	Output voltage	52 ± 2 VDC
TP-P-M400	Maximum output current	55 A
	Cooling	Forced-air cooling

Matrice M400 Ground Power Supply Equipment

	project	technical parameter
	Ground unit dimensions	460 × 355 × 420 mm (L × W × H)
	Tether cable length	120 m
	Weight	28 ± 0.5 kg
	AC input	220 VAC
	Maximum rewind speed	≤2 m/s
TP-T-M400	Cable operation	Passive payout / active rewind
	Ground output voltage	750 VDC

2. TP-M400 Fixed Lighting System Installation and Operation Guide

2.1 Obtain the DJI M400 drone and its airborne power supply module. First, install the power supply: attach the quick-release plate's fixing bolts and secure the mounting components as shown in the diagram. Then, position the onboard power supply along the structural component's guide rail and secure it in place; upon proper installation, you will hear a click indicating that the structural component has locked.

		
Structural component fixation	Power supply base limit switch	Power supply module installed.

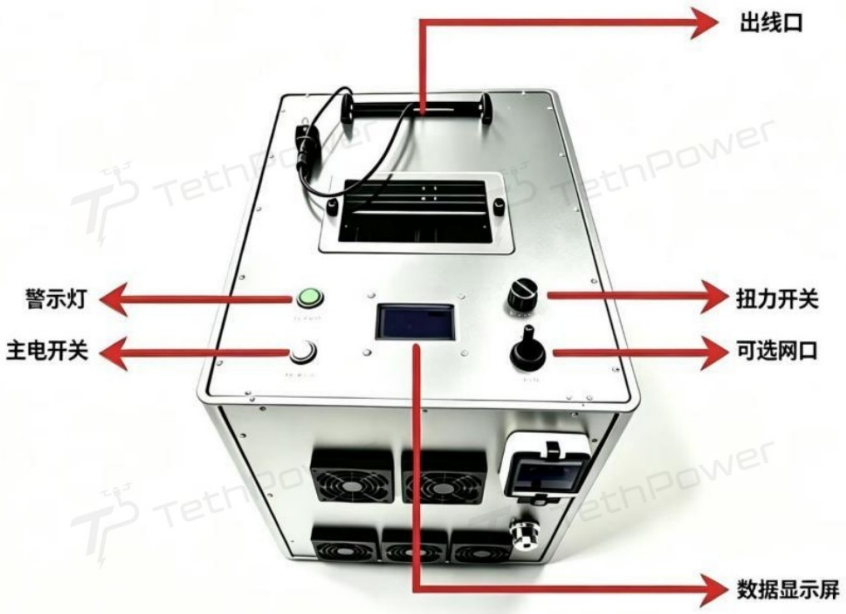
2.2 Securely install the Matrice M400 lighting units on the aircraft landing gear using the quick-release fasteners. Connect each TP-A200 lamp to the dedicated high-voltage pass-through supplied directly by the TP-T-M400 ground tether unit. The lamps operate at 700–750 VDC and are not powered by the TP-P-M400 module's 52 ± 2 VDC output.

		
Structural component fixation	Cable fixation	Light socket installation

2.3 Install the M400 official tethered battery; plug the tethered battery connector into the onboard power supply port. Upon proper insertion, you will hear a click sound. Connect the ground-based tethered power supply device connector to the onboard power supply; secure the cable to the drone tripod as a load-bearing point.

		
tethered battery installation	Plug-in connection	Installation of the tethered power supply plug

2.3 Schematic diagram of the M400 Ground Power Supply Equipment Operation Panel



Button Instructions	**Main power switch** **Torque switch**	**High-voltage output start/stop** **Cable Reeling/Stopping**
System Operation Interface	**Turn on the main power switch (air circuit breaker).** 1. When the system operation interface is active, rotate the torque switch knob clockwise to initiate automatic thread retraction; in the automatic thread retraction mode, rotate the torque switch knob counterclockwise to deactivate automatic thread retraction. 2. After powering on the device, press the main power switch to turn on the power supply; the warning light will then turn green.	

2.4 Turn on the M400 drone remote controller: press and hold the button to activate the M400 drone's tethered battery; then activate the ground tethered box to initiate high-voltage power supply. The remote controller will display "Unlocked Takeoff" – the lighting can be controlled via the remote handle to adjust brightness or turn the light on/off. For the remote power switch: press the "A" button briefly to turn the light on; there are three power reduction levels – press the button briefly to gradually reduce power until the light is turned off; alternatively, press and hold the "A" button to turn the light off immediately. During drone landing, the tethered box will activate to retract the tether; when the drone descends to approximately 5 meters above the ground, the tethered box will deactivate the high voltage, and the remote controller will guide the drone safely to land on the ground.



3. Important Notes

1） The DJI Matrice 400 requires the tethered battery to be fully charged before each use.
2） Before use, please level the device and place it on a flat surface to ensure it is in a relatively balanced position.
3) Operators must wear insulated gloves to prevent accidental electric shock.
4) When adjusting the speed control knob on the Matrice M400 ground power supply unit, turn it slowly from the minimum position to the maximum position; do not abruptly set it to the maximum position.
5) After completing the charging or discharging process, coil the power cord neatly and store it inside the box; do not drag it across the floor.
6) During use, do not drag the tethered cable across the ground to prevent it from fraying; also, check the ground for any stones or other sharp objects that could cut

the cable.

4. Product Maintenance & Warranty After-Sales Service

4.1 Storage and Transportation

When transporting a ground tether unit, shock absorption measures must be taken; otherwise, it is normal for internal screws to become loose.

4.2 Maintenance

1) Perform an inspection and maintenance of the tethered power supply every 50 takeoffs/landings or every 20 hours to ensure its proper operation.
2) Check whether any components of the tethered power supply have been subjected to any severe impact, and verify that all moving parts continue to operate smoothly.

4.3 Inspection:

1) Cable inspection: Carefully check the entire length of the tether cable for any damage to the outer sheath, exposure of the armor layer, excessive bending, or bending/corrosion of the connector pins. This is the most critical step.
2) Interface Cleaning: Disconnect all electrical connectors; inspect and clean any dust or moisture from the interfaces to ensure they are dry and clean.
3) Proper storage: Wind cables neatly and avoid sharp bends; store them in a cool, dry place.