Tethered Power System for Drone

User Manual

Model.MJ75 MJ100 MJ150 MJ180H MJ300

CONTENTS

Read The Instructions

- It is recommended to watch all tutorial videos on the official website and read the Safety Guidelines before first time use. Prepare for your first flight by reviewing the User Manual for more details.

Quick Guide

Danger!
Electric High Voltage!

General Use

This tethered drone power supply base station is a long-endurance power supply platform specially developed for multi-rotor drones.

This compact and sturdy solution can transmit power from the ground to the drone through an ultra-light cable, and ensure that the drone is stably connected to the base station, providing a safe and stable flight.

Operation Warnings

1. This device cannot be used in rainy days, otherwise the cable will conduct electricity and may be damaged.
2. The base station must be placed on an open flat ground, and keep a distance of 10m from the drone.
3. The take-up speed is controlled by the gear. When retracting the cable, the cable must be kept at a proper tension.
4. When the power is turned on, it is strictly forbidden to touch the cable directly.
5. It is strictly forbidden to touch the cable directly when the cable is being retracted and unwinded.
6. It is strictly forbidden to block the air outlet. When the weather is hot, the observation window can be opened to dissipate heat.
7. UAVs should be equipped with batteries for flight to prevent power failure.
8. When the overheating warning sounds, please land the drone and shut down the system.
9. Don't change system components/software settings. Any unauthorized changes will be at your own risk.

Before Use

1. Open the base station cover. Connect the tether cable to the airborne power supply.
2. Connect the airborne power supply with the drone.
3. Hook up the drone with the tether cable lock.
4. Connnect the battery to airborne power supply.
5. Adjust the Winch Control to '0' position.

Taking Off

1. Turn on the Main On/Off on the base station, the screen will automatically turn on.
2. Turn on the tether power by 3s long-pressing the Tether Power button. The system will automatically be ready in few seconds. Green light will be on.
3. Take off the drone manually and slowly and it will automatically pull out the cable.
4. When the cable reaches the limit length, the alarm will be triggered (press the Tether Power button to cancel the alarm). Do not fly higher.

Landing

1. Adjust the Winch Control to 2~5 gear and retract the cable. Lower the drone accordingly.
2. Turn the Winch Control to '0' when the drone is close to ground. Land the drone to the ground.
3. Turn off the Tether Power by long pressing by 3s on the base station. Green light will be off.
4. Disconnect the airborne power supply from the drone. Disconnect the cable from the airborne power supply and get the cable abck into the base station.
6. Turn off the Main On/Off.

Alarm

1. Read the alarm content on the display sreen.
2. Short press the Tether Power button to cancel the alarm.

General use

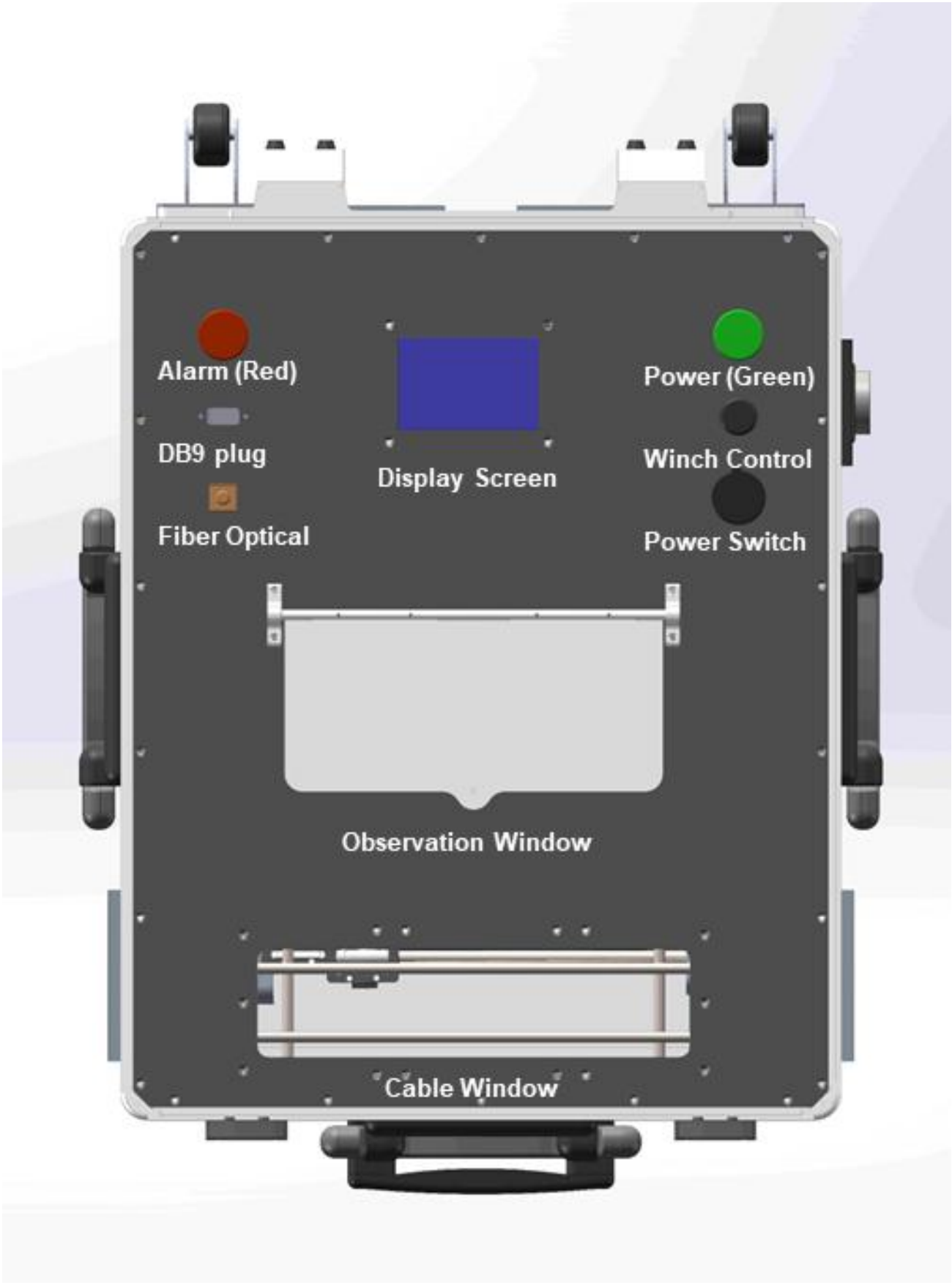
MJ75 series are rugged tethering stations for multi-rotor drones. This compact and robust solution enables the transmission of power from an external ground power supply unit to the drone through the micro-tether. The core of the micro-tether ensures the drone remains attached to the base station providing a safe phase of flight.

Open the box

1 x All-in-one base station

Product Description

✚ *Station panel view*



✚ *Station side view*

The ground station user interface includes below controls.

1) Power Input: The power input should be connected to 380V~50Hz. An emergency, unplugging the cable can cut the power supply to the station.

2) Safety On/Off (Anti-electric shock): When it is activated, the station will work but NO DC power is to the cable to secure the safety of users.

3) Earthing: To connect the machine to ground for safety.

4) Power Switch: ON- power to the cable. OFF- power off the cable.

- Long press 3s to power on.

- Long press 3s to power off.
- 1s press to release the alarm.

! *Attention. Serious injury could occur if the micro-tether is manipulated once the power is switched ON.*

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5) Winch Control: It can control the winching speed of the tether.

6) Fiber Optical: It can be used to transfer data with the drone.

7) Alarm (Red): The buzzer alerts the user to an alarm.

8) Power (Green): When this green light is on, the power is transferred to the cable.

9) DB9 plug: For control panel setting only. This setting must be handled by authorized person.

10) Observation Window: To observe the status of tether cable. It can be open up if the environment temperature is above 35 ℃.

11) Display Screen: To display information such as, current, voltage, temperature, cable length released.

Before use

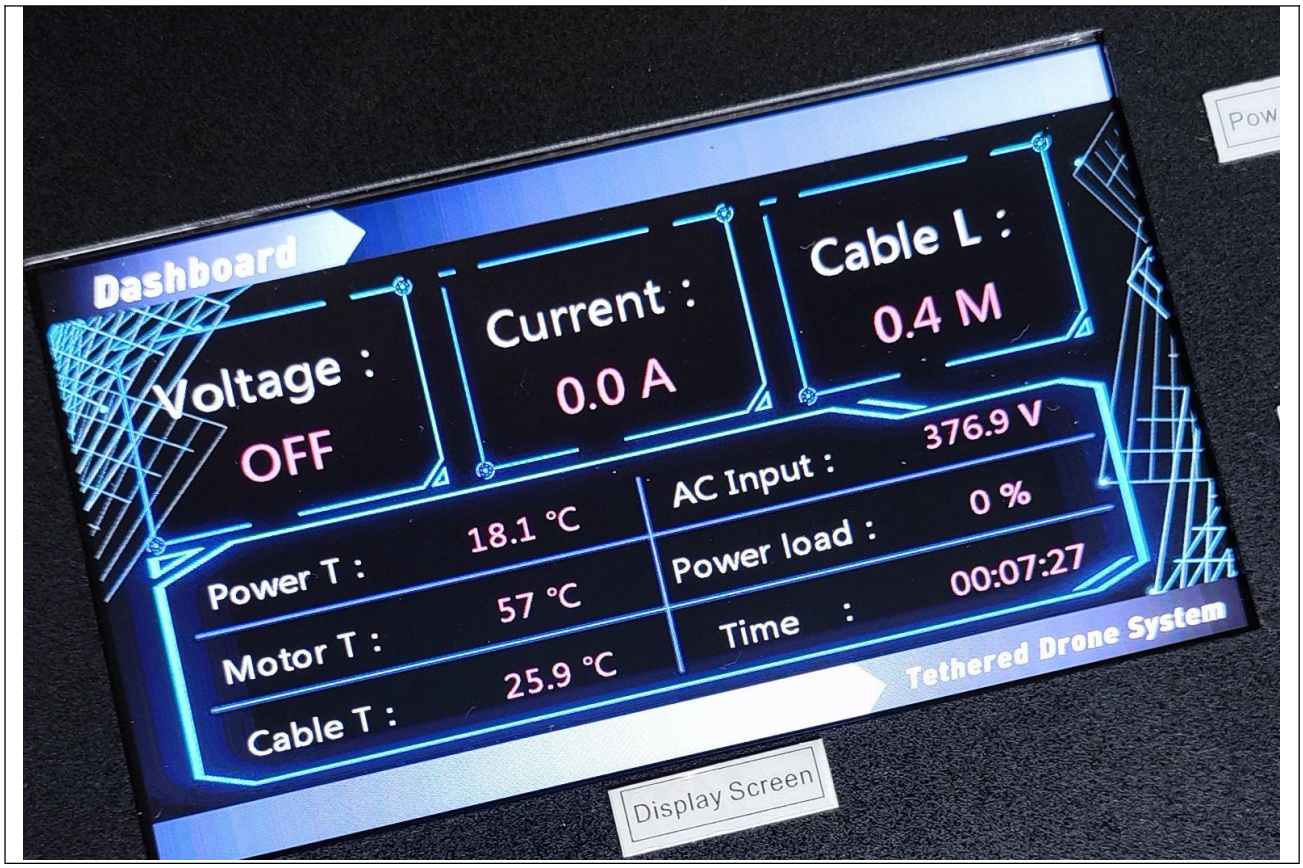
1. Open the base station cover. Pull out the cable and connect the socket to the airborne power input. Connect the airborne power supply with the drone. Connect the backup battery to the airborne power supply.
2. Adjust the winch control to the "0" position on base station. If not, the alarm will be on.

! *Attention. Please start the generator and wait for 3~5 minutes.*

Taking off

3. Turn on the System On/Off on the base station, the screen will automatically turn on.

- Screen display description



- Voltage-Tether power off or Tether power voltage
- Current-Tether current to Drone
- Cable L-Tether length out after power-on
- Power T-Power temperature
- Motor T-motor temperature
- Cable T-Cable temperature
- AC Input-AC input voltage
- Power load-The capacity of full loading
- Time-Working time

4. Long press the Power Switch for 3s to turn on the tether power. The system will automatically be ready in few seconds. The green light will be illuminated to indicate the tether power is on. You can read the increasing voltage data on the screen.

! *Attention. Please watch the green light on during the drone is hovering. If the green light is off, it means the tether power is off. The drone is powered by the battery now.*

5. Take off the drone manually and slowly and it will automatically pull out the cable.

! *Attention. Please take off the drone slowly in case of pulling the tether too hard. It may cause unbalance of drone and drop-down may occur.*

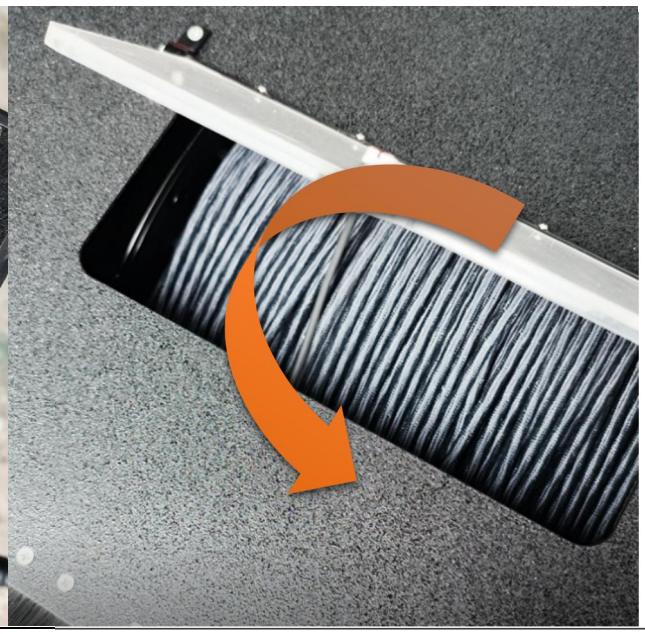
! *Attention. For inside cooling, the observation window must be open, and release the tether cable more than 50 meters.*

6. When the cable reaches the warning length, the alarm will be triggered (press the power switch, the alarm will be cancelled). Do not fly higher. Lower the drone.

! *Attention. Watch the tether through the observation window if needed.*

Landing

7. Lower the drone and adjust the Winch Control at the same time to retract the cable.

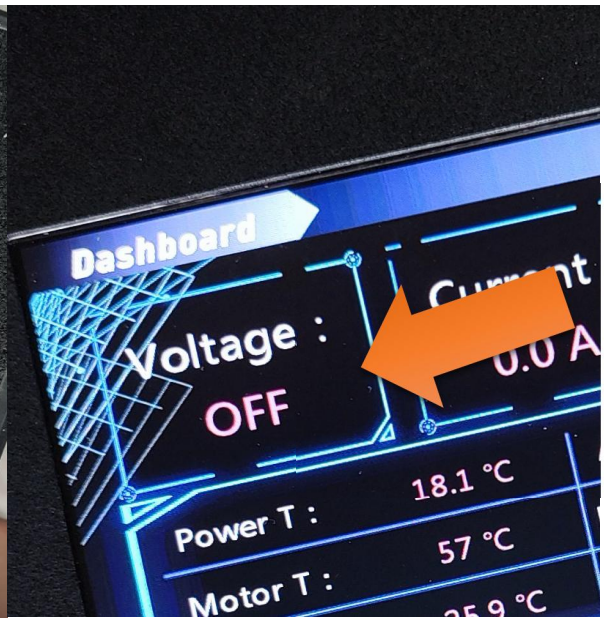


! *Attention. Watch the tension of the tether. Keep the tether not too tight in case of drop-down of the drone.*

8. Turn off the Winch control when the drone is close to the ground. Land the drone to the ground.

! *Attention. Do not touch the tether before the power switch is turned off. Electric shock may occur if the tether is broken.*

9. Long press and turn off the Power Switch on the base station. The green light will extinguish and you can see the voltage on the screen goes to 'Power OFF'. The tether power will die away in seconds.

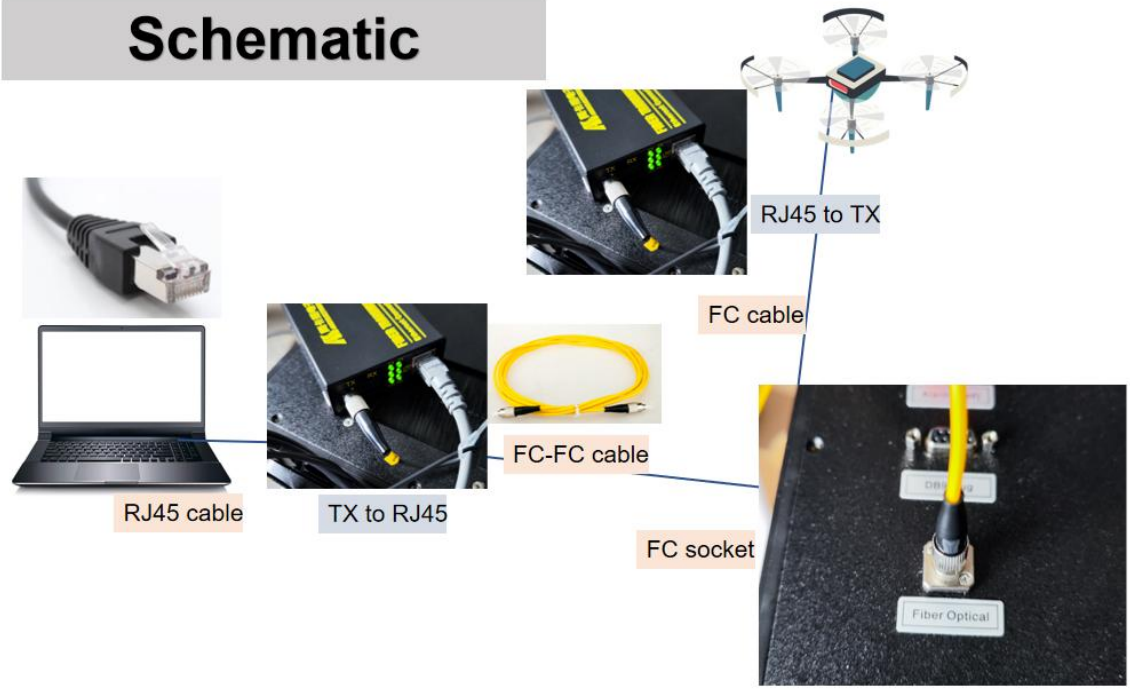


10. Retract the rest tether before you switch off the Safety On/Off.
11. Disconnect the airborne power supply from the drone. Disconnect the cable from the airborne power supply.

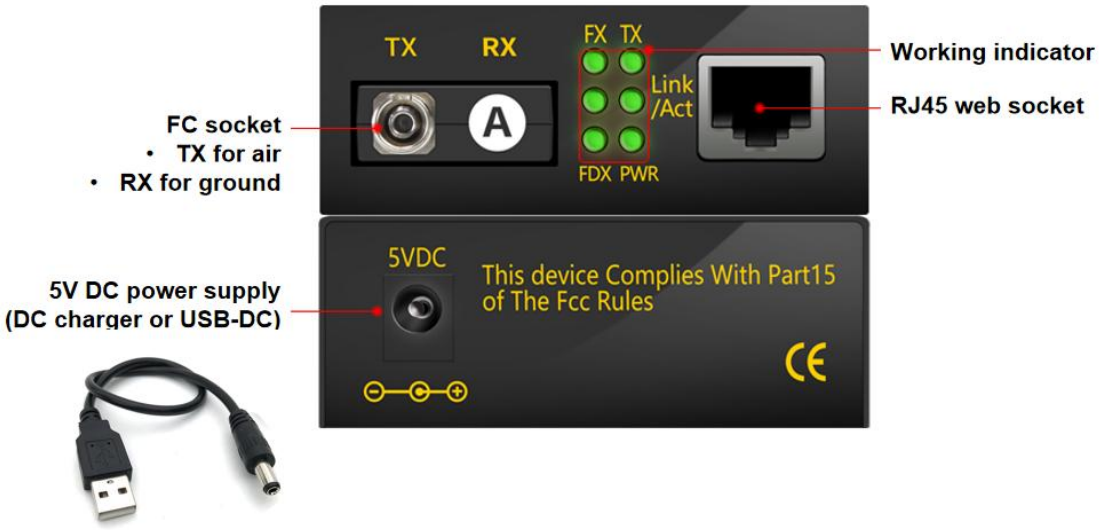
! *Attention. Cut off the power of the station. Then disconnect the cables.*

How to use fiber connection

Schematic



Indications



Transportation

No bumping and water entering during the transportation of this equipment. It must be packed in aviation aluminum box during transportation or take damping treatment, or the warranty does not cover.

Operation warnings

1. This device cannot work on rainy days, otherwise the cable will conduct electricity and may be broken.
2. Put the base station in open flat ground and leave at least 10m distance away from the aircraft.
3. The cable pulling speed is controlled by winch control. When releasing/pulling the cable, you must keep the cable in a suitable tension to prevent winching and pulling the aircraft.
4. No touching the cable directly when the power is on.
5. No touching the cable directly when it is moving.
6. Blocking air outlet is strictly prohibited. The observation window can be opened for heat dissipation when hot.
7. The aircraft should be equipped with battery in case of power-off.
8. When the overheating warning is ignited, please withdraw the aircraft and shut down the system in minutes.
9. Do not change the system components/software settings. Any risk caused by unauthorized change will be covered by yourself.

Technical data

MJ75

size	60.5x45x48cm
weight	50kg
input	380V AC ±10% 50Hz/60Hz
output	420V DC / 7.5KW
height	150m
features	※ Automatic voltage compensation, automatic overcurrent protection ※ Anti -inverted electric momentum for safe landing ※ Isolation design to prevent electric shock ※ Low -current alarm for safe flight ※ Base station with 485 communication to display datas in real time

MJ100

size	60.5x45x48cm
weight	50kg
input	380V AC ±10% 50Hz/60Hz
output	750V DC / 10KW
height	150m
features	※ Automatic voltage compensation, automatic overcurrent protection ※ Anti -inverted electric momentum for safe landing ※ Isolation design to prevent electric shock ※ Low -current alarm for safe flight ※ Base station with 485 communication to display datas in real time

MJ150

size	60.5x45x48cm
weight	52kg
input	380V AC ±10% 50Hz/60Hz
output	750V DC / 15KW
height	150m
features	※ Automatic voltage compensation, automatic overcurrent protection ※ Anti -inverted electric momentum for safe landing ※ Isolation design to prevent electric shock ※ Low -current alarm for safe flight ※ Base station with 485 communication to display datas in real time

size	60.5x45x48cm
weight	52kg
input	380V AC ±10% 50Hz/60Hz
output	750V DC / 18KW
height	110m
features	※ Automatic voltage compensation, automatic overcurrent protection ※ Anti -inverted electric momentum for safe landing ※ Isolation design to prevent electric shock ※ Low -current alarm for safe flight ※ Base station with 485 communication to display datas in real time

MJ180L

MJ180H

size	60.5x45x48cm
weight	52kg
input	380V AC ±10% 50Hz/60Hz
output	1000V DC / 18KW
height	150m
features	※ Automatic voltage compensation, automatic overcurrent protection ※ Anti -inverted electric momentum for safe landing ※ Isolation design to prevent electric shock ※ Low -current alarm for safe flight ※ Base station with 485 communication to display datas in real time

size	60.5x45x58cm
weight	60kg
input	380V AC ±10% 50Hz/60Hz
output	1000V DC / 30KW
height	110m
features	※ Automatic voltage compensation, automatic overcurrent protection ※ Anti -inverted electric momentum for safe landing ※ Isolation design to prevent electric shock ※ Low -current alarm for safe flight ※ Base station with 485 communication to display datas in real time

MJ300