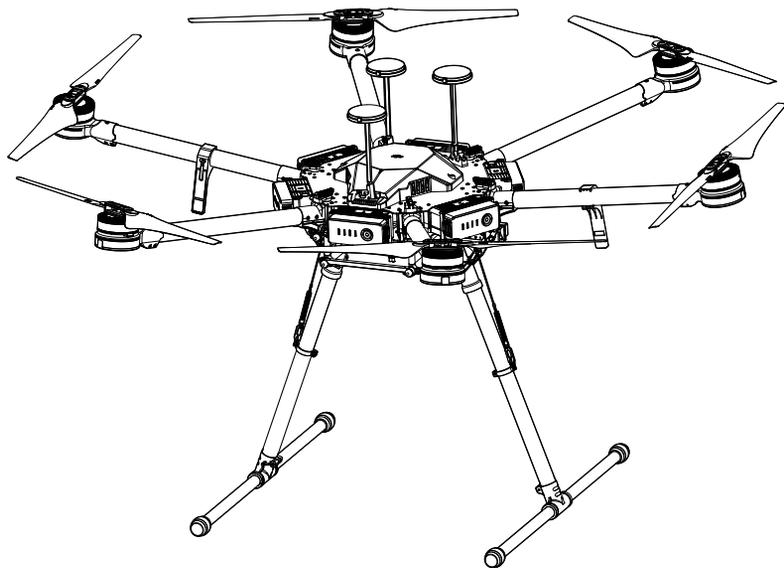


MATRICE 600 PRO

User Manual

V1.0 2016.11



Using This Manual

Legends

 Warning

 Important

 Hints and Tips

 Reference

Information

The MATRICE™ 600 Pro does not include a gimbal or camera. A corresponding gimbal or camera is required for certain functions mentioned in this manual.

Before Flight

The following tutorials and manuals have been produced to help you get the most out of your Matrice 600 Pro.

1. In the Box
2. Disclaimer and Safety Guidelines
3. Quick Start Guide
4. Intelligent Flight Battery Safety Guidelines
5. User Manual

Check to see that you have all of the components listed in the In the Box document. Before assembly, read the Disclaimer and Safety Guidelines. Then prepare for your first flight by using the Quick Start Guide. For more information, please refer to the User Manual available on the DJI website (<http://www.dji.com>).

Download DJI Assistant 2

When using your Matrice 600 Pro for the first time, you will need to activate it in the DJI Assistant 2 software.

<http://www.dji.com/matrice600-pro/info#downloads>

DJI Assistant 2 supports Windows 7 (or later) or OS X 10.11 (or later).

Download DJI GO App

Download and install the DJI GO™ app before use. Scan the QR code or visit <http://m.dji.net/djigo> to download the app.

DJI GO supports iOS 8.0 (or later) or Android 4.1.2 (or later).



Warning

The rotating propellers can cause serious damage and injury. Fly with caution at all times.

Assembly Warning

1. Ensure that all other parts are installed before inserting the Intelligent Flight Batteries.
2. DO NOT remove any glued-in screws.
3. The Matrice 600 Pro should be lifted off the ground when testing the landing gear or recalibrating servo travel.

Flight Warning

1. The aircraft is not waterproof. DO NOT fly in rainy or snowy weather.
2. Ensure that all parts are in good condition before each flight. DO NOT fly with worn or damaged parts.
3. Ensure that the propellers and motors are installed correctly and propellers and frame arms are unfolded before each flight.
4. Ensure that all the GPS-compass Pro are unfolded and the arrows on the GPS-Compass Pro point toward the front of the aircraft before each flight.
5. Ensure that all cables are connected correctly and firmly before each flight.
6. Maintain a safe distance from people, buildings, high voltage power lines, tall trees, water, and other hazards when flying the aircraft.
7. Only use DJI TB47S/TB48S Intelligent Flight Batteries as the power supply.
8. DO NOT overload the system.
9. DO NOT go near or touch the motors or propellers when they are spinning, as this can cause serious injury.
10. Disconnect the batteries and remove the camera during transportation to avoid damage or injury.
11. Only use compatible DJI parts.

If you encounter any problems or if you have any questions, please contact your local DJI authorized dealer or DJI Support.

DJI Support Website:
www.dji.com/support



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Product Profile

Introduction

The Matrice 600 Pro is a six-rotor flying platform designed for professional aerial photography and industrial applications. It is equipped with a dedicated DJI™ A3 Pro triple-modular redundancy system and advanced intelligent flight functions, ensuring safe and stable operation at all times. Its mechanical design, with quick-release landing gear and mounted folding arms, make it easy to transport, store, and prepare for flight. With a maximum takeoff weight of 15.5 kg, the Matrice 600 Pro can meet specific needs across a range of industries.

Highlighted Features

The A3 Pro's three GPS modules and IMUs add triple modular redundancy to greatly reduce the risk of system failure. It is fully compatible with the DJI Onboard and Mobile SDKs, allowing developers to optimize the flying platform for specific applications.

The Matrice 600 Pro uses six Intelligent Flight Batteries and a patented battery management system to extend flight time and provide safe and reliable power supply. The standard DJI Hex Charger can charge up to six Intelligent Flight Batteries and two remote controllers simultaneously.

The Matrice 600 Pro is compatible with the DJI ZENMUSE™ Z30, X3, X5 series, XT gimbal and camera, Zenmuse Z15 series HD gimbal, and Ronin-MX gimbal for professional aerial photography and industrial applications.

The retractable landing gear included with the Matrice 600 Pro allows for clear, 360-degree camera views.

The LIGHTBRIDGE™ 2 HD video downlink is integrated into the remote controller, allowing real-time camera footage to be displayed in the DJI GO app. Dual remote controller mode makes it possible for the aircraft and camera to be operated on two separate controls.

Installation

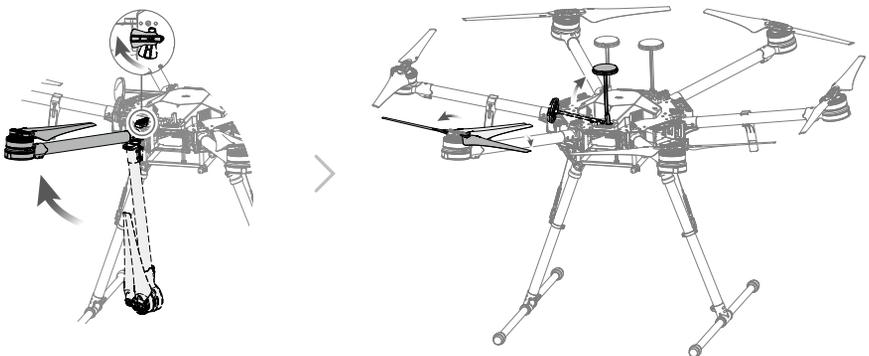
Mounting the Landing Gear

1. Ensure the screw on the landing gear leg is pointing in the same direction as the gap next to the knob on the landing skid. Insert both landing gear legs into a corresponding landing skid, rotate the landing gear leg until it is fully seated into the landing skid, and then secure it in place by tightening the knob.
2. Ensure the hook on the landing gear leg is facing toward the outside of the aircraft, then attach it to the connector on the aircraft body. Rotate the landing gear leg until it is fully seated into the connector.
3. Connect both springs to the center frame and the landing gear legs. Mind your fingers when mounting the springs.



Unfolding the Aircraft

1. Gently lift the frame arm. Twist the red knob to lock each arm in place. To store, untwist the knob and lower the frame arm.
2. Unfold the propellers.
3. Unfold the GPS-Compass Pro and ensure that all the arrows on the GPS-Compass Pro point toward the front of the aircraft.



Mounting the Gimbal (Optional)

The built-in flight control system of the Matrice 600 Pro is compatible with the following DJI gimbals and cameras.

Ronin-MX

Zenmuse Z30

Zenmuse X3

Zenmuse X5 Series

Zenmuse XT

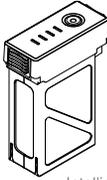
Zenmuse Z15 Series HD Gimbal: Z15-A7, Z15-BMPCC, Z15-5D III, Z15-GH4

Different accessories are used to mount different gimbals or cameras. Purchase corresponding accessories according to your needs. Refer to [DJI Zenmuse X3 Gimbal and Camera \(p. 57\)](#) for gimbal movement control for all the gimbals above.

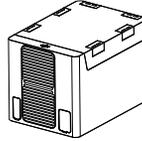
Intelligent Flight Battery

Profile

The Matrice 600 Pro has six battery compartments and six Intelligent Flight Batteries to extend the flight time. The standard Intelligent Flight Battery has a capacity of 4500mAh, voltage of 22.2V, and built-in smart charge-discharge function. It can only be charged with an appropriate DJI approved charger.



Intelligent Flight Battery



DJI Hex Charger

 The Intelligent Flight Battery must be fully charged before first-time use.

Intelligent Flight Battery Functions

1. Battery Level Display: LEDs display the current battery level.
2. Battery Life Display: LEDs display the current battery life.
3. Auto-discharging Function: The battery automatically discharges to below 65% of total power when it is left idle (pressing the power button will cause the battery to exit idle state) for more than 10 days to prevent swelling. It takes about two days to discharge the battery from 100% to 65%, and it is normal to feel moderate heat emitting from the battery during the discharge process. The discharge thresholds can be adjusted in the DJI GO app.
4. Balanced Charging: Automatically balances the voltage of each battery cell when charging.
5. Overcharge Protection: Automatically stops charging the battery when it is fully charged.
6. Temperature Detection: The battery will only charge when its temperature is between 5°C (41°F) and 40°C (104°F).
7. Overcurrent Protection: The battery stops charging when the maximum current of 10A is exceeded.
8. Over-Discharge Protection: The battery stops discharging when the battery voltage reaches 18V to prevent damage from over-discharge.
9. Short Circuit Protection: Automatically cuts the power supply when a short circuit is detected.
10. Battery Cell Damage Detection: The DJI GO app shows a warning message if a damaged battery cell is detected.
11. Battery Log: Show the last 32 entries of battery information including the warning messages.
12. Sleep Mode: The battery enters sleep mode after 10 minutes of inactivity to save power.
13. Communication: The battery voltage, capacity, current, and other relevant information is sent to the flight controller.

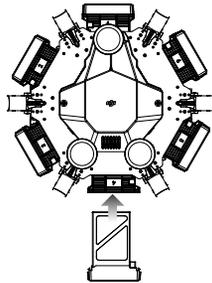
 Read the *Disclaimer and Safety Guidelines* and *Intelligent Flight Battery Safety Guidelines* before use. Users take full responsibility for all operations and usage.

Using the Batteries

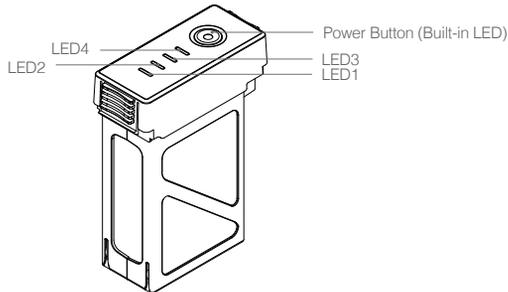
Installing the Batteries

- ⚠ • There are six battery compartments on the Matrice 600 Pro. You must load all six battery compartments with batteries of the same model before each flight.
 - Make sure all the batteries are fully charged before each flight.
 - Never insert the Intelligent Flight Battery into or remove it from the battery compartment of the Matrice 600 Pro when it is powered on.
-
- 💡 • If using more than six batteries, you can mark them separately (six batteries for one set) with the battery stickers that come with the Matrice 600 Pro.

Insert the six Intelligent Flight Batteries into the battery compartments.



Powering ON/OFF



Powering On: Press the Power Button once, then press again and hold for 2 seconds to power on. The Power LED will turn red and the Battery Level Indicators will display the current battery level.

The Matrice 600 Pro has six Intelligent Flight Batteries and an advanced battery management system. When you power on one of the batteries, the battery management system will automatically assess the power level for all of the other batteries. If the power supply is OK, the other batteries will power on automatically. Likewise, you only need to power off one battery and all the other batteries will power off automatically.

- ⚠ **DO NOT** manually power on more than one Intelligent Flight Battery to avoid damaging the batteries.

If the power supply is not OK when powering on the batteries, the DJI GO app will either prompt you to adjust the battery positions or tell you there is a large voltage difference.

To adjust the battery positions:

1. Power off all the batteries.
2. Adjust battery positions by following the tips in the DJI GO app.
3. Ensure all the battery positions are correct and then power on one of the batteries. The other batteries will power on automatically if the positions are correct.

If the message prompt says there is a large voltage difference, the power supply issue cannot be resolved by adjusting the battery positions. Fully charge all the batteries and try again.

Powering Off: Press the Power Button once, then press again and hold for 2 seconds to power off.

-  Ensure that all Intelligent Flight Batteries are operating normally before takeoff. If a battery abnormal status appears in the DJI GO app, follow the on-screen instructions. The DJI GO app will instruct you to land if a battery abnormality occurs during flight. In this event, you should land and check the battery immediately.
-

Low Temperature Notice

1. Using the Intelligent Flight Battery at core temperatures below -10°C is not advised. Between -10°C and 5°C, the Intelligent Flight Battery should attain a voltage of 4.2 V, but it is recommended that you apply the insulation sticker to the battery to prevent a rapid drop in temperature.
 2. In cold environments (i.e. air temperature below 5°C), the performance of the Intelligent Flight Battery is reduced. Ensure the Intelligent Flight Battery is fully charged and attains a voltage of 4.35 V before takeoff.
 3. In very cold environments (e.g. air temperature of -20°C, battery core temperature of 5°C), the Intelligent Flight Battery's core temperature will drop rapidly even after pre-heating, and its performance is significantly reduced. It is not recommended to fly under such conditions.
 4. If the DJI GO app displays the Low Battery Level warning, stop flying and land the aircraft immediately. You will still be able to control the aircraft's movement when this warning is triggered.
 5. For the optimal performance, maintain the Intelligent Flight Battery's core temperature above 20°C when in use.
-

-  • Ensure the temperature of the Intelligent Flight Battery exceeds 5°C before takeoff.
- To warm up the battery, power on the Intelligent Flight Battery inside the battery compartment, for approximately 1-2 minutes, before takeoff. Begin flying by hovering the aircraft at a low altitude, for approximately 1 minute, to ensure the battery temperature is stable.
-

Checking the Battery Level

The Battery Level Indicator shows how much battery capacity is remaining. When the battery is powered off, press the power button once. The Battery Level Indicator will light up to display the current battery level. See the table below for details.

-  The Battery Level Indicator will show the current battery level during charging and discharging. Its LEDs can exhibit the following behavior.
-  : LED is on.  : LED is blinking.
-  : LED is off.
-

Battery Level Indicator				
LED1	LED2	LED3	LED4	Battery Level
				87.5%~100%
				75%~87.5%
				62.5%~75%
				50%~62.5%
				37.5%~50%
				25%~37.5%
				12.5%~25%
				0%~12.5%
				=0%

Checking the Battery Life

The battery life indicates the number of cycles the battery can be charged and discharged before it must be replaced. When the battery is powered off, press and hold the power button for 5 seconds to check the battery life. The Battery Level LEDs will light up and/or blink as described below for 2 seconds:

Battery Life				
LED1	LED2	LED3	LED4	Battery Life
				90%~100%
				80%~90%
				70%~80%
				60%~70%
				50%~60%
				40%~50%
				30%~40%
				20%~30%
				below 20%

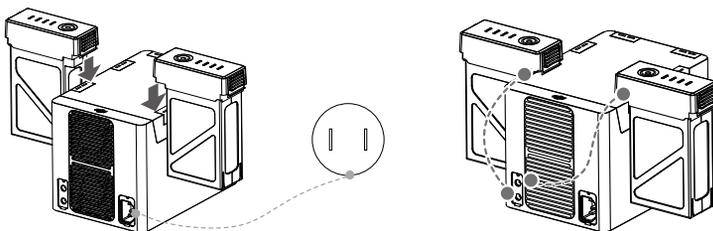
 When the battery life reaches 0%, it can no longer be used.

 For more information about the battery, launch the DJI GO app and go to the Battery tab.

Charging the Intelligent Flight Battery

The Matrice 600 Pro is shipped with a DJI Hex Charger. It can charge up to six Intelligent Flight Batteries and two remote controllers simultaneously.

1. Connect the Hex Charger to a power outlet (100-240V, 50/60Hz) with the power cable.
2. Insert the Intelligent Flight Battery into the battery port to begin charging.
3. When the LED lights on the Intelligent Flight Battery turn off, charging is complete and the device can be disconnected from the Hex Charger.



- ⚠**
- Place the Hex Charger on a flat and stable surface when in use. Ensure the device is properly insulated to prevent fire hazards.
 - DO NOT block the heat vent when using the Hex Charger to ensure that heat can be properly dissipated.
 - DO NOT attempt to touch or expose the metal terminals on the Hex Charger.
 - Clean the metal terminals with a clean, dry cloth if there is any noticeable buildup.
 - The two remote controller ports are connected in parallel with the battery ports as shown in the figure above. As a result, charging a remote controller together with an Intelligent Flight Battery on the corresponding port will require longer charging time.
 - Air cool the Intelligent Flight Battery after each flight. Allow its temperature to drop to room temperature before charging.
 - The charging temperature range is 5° to 40° C. The battery management system will stop the battery from charging when the battery cell temperature is out of range.

Battery Level Indicator While Charging				
LED1	LED2	LED3	LED4	Battery Level
☐	☐	☐	☐	0%~25%
☐	☐	☐	☐	25%~50%
☐	☐	☐	☐	50%~75%
☐	☐	☐	☐	75%~100%
☐	☐	☐	☐	Fully charged

Charging Protection LED Display

The table below describes the battery protection mechanisms and their corresponding LED patterns.

Battery Level Indicator While Charging				Indicator Pattern	Battery Protection Item
LED1	LED2	LED3	LED4		
				LED2 blinks twice per second	Overcurrent detected
				LED2 blinks three times per second	Short circuit detected
				LED3 blinks twice per second	Overcharge detected
				LED3 blinks three times per second	Charger overvoltage detected
				LED4 blinks twice per second	Charging temperature is too low (<5°C)
				LED4 blinks three times per second	Charging temperature is too high (>40°C)

After any of the above protection issues are resolved, press the power button to turn off the Battery Level Indicator. Unplug the Intelligent Flight Battery from the battery charger and plug it back in to resume charging. Note that you do not need to unplug and plug the battery charger in the event of a charging temperature error; the battery charger will resume charging when the temperature falls within the normal range.

DJI does NOT take any responsibility for damage caused by third-party battery chargers.

Calibrating the Battery Capacity:

To effectively calibrate the capacity of the Intelligent Flight Battery, it is recommended to charge and discharge the battery thoroughly for every 10 charge-and-discharge cycles. Choose one of the following methods to discharge battery. After discharging the battery, fully charge the battery to finish the calibration.

Slow: Place the battery into the Matrice 600 Pro's battery compartment and power it on. Leave it on until there is less than 5% battery level, or until it can no longer be turned on. Check the battery level in the DJI GO app.

Fast: Fly the Matrice 600 Pro outdoors until there is less than 5% battery level, or until the battery can no longer be turned on.

Remote Controller

Profile

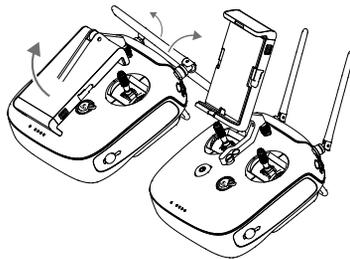
The remote controller integrates video downlink and aircraft control into one system. The combined system operates at 2.4 GHz with a maximum signal transmission range of 5 km. The device features a number of standard and customizable buttons that allow users to quickly access certain aircraft functions, such as taking and reviewing photos/videos, as well as controlling the gimbal and landing gear. It is powered by a 2S rechargeable battery.

- Stick Mode: Control can be set to Mode 1, Mode 2 (by default), or a custom mode in the DJI GO app.
- Mode 1: The right stick serves as the throttle.
- Mode 2: The left stick serves as the throttle.

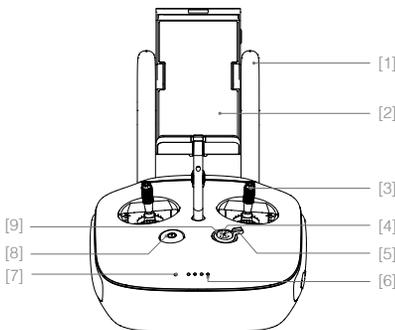
⚠ DO NOT operate more than 3 aircrafts within in the same area (size equivalent to a soccer field) to prevent transmission interference.

Preparing Remote Controller

Tilt the Mobile Device Holder to the desired position then adjust the antenna as shown.



Remote Controller Overview



- [1] **Antennas**
Relays aircraft control and video signal.
- [2] **Mobile Device Holder**
Mounting place for your mobile device.
- [3] **Control Stick**
Controls aircraft orientation.
- [4] **Return-to-Home (RTH) Button**
Press and hold the button to initiate Return-to-Home (RTH).

[5] Landing Gear Control Switch

Toggle the switch up or down to raise or lower the landing gear.

[6] Battery Level LEDs

Displays the current battery level.

[7] Status LED

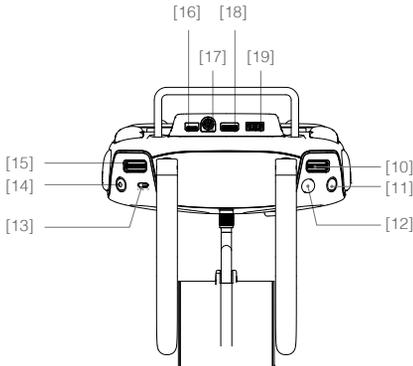
Displays the power status.

[8] Power Button

Used to power on or power off the remote controller.

[9] RTH Status LED

Circular LED around the RTH button displays RTH status.



[10] Camera Settings Dial

Turn the dial to adjust camera settings. Only functions when the remote controller is connected to a mobile device running the DJI GO app.

[11] Playback Button

Playback the captured images or videos.

[12] Shutter Button

Press to take a photo. If in burst mode, the

set number of photos will be taken with one press.

[13] Flight Mode Switch

Used to switch between P, A and F mode.

[14] Video Recording Button

Press to start recording video. Press again to stop recording.

[15] Gimbal Dial

Use this dial to control the tilt or pan of the gimbal.

[16] Micro USB Port

Reserved.

[17] SDI Port

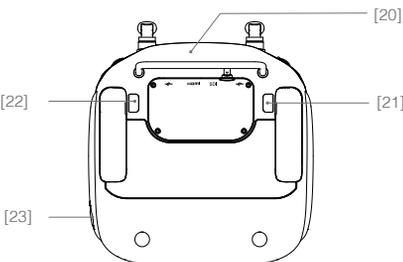
Connect an SDI display device.

[18] HDMI™ OUT Port

Connect an HD compatible monitor.

[19] USB Port

Connect to mobile device to access all of the DJI GO app controls and features.



[20] GPS Module

Used to pinpoint the location of the remote controller.

[21] Back Left Button

Customizable button in the DJI GO app.

[22] Back Right Button

Customizable button in the DJI GO app.

[23] Power Port

Connect to a power source to charge the remote controller's internal battery.