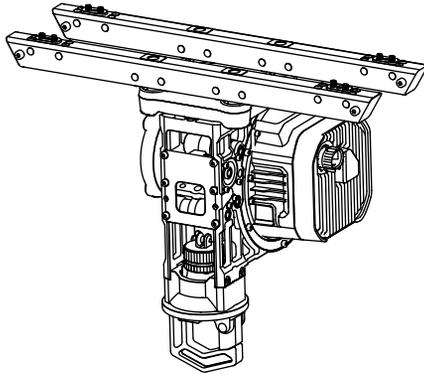


# **dji** FLYCART 30

## Winch System User Guide

v1.0



# Contents

<b>Introduction</b>	<b>3</b>
<b>Installation</b>	<b>3</b>
<b>Cargo Mounting Methods</b>	<b>5</b>
Mounting a Small Cargo Volume	5
Mounting a Large Cargo Volume	6
<b>Weight Sensor Calibration</b>	<b>6</b>
<b>Delivery</b>	<b>7</b>
Tethered Descent	7
DJI Pilot 2 Settings	7
Cable Control	8
Loading Process	8
Unloading Process	9
<b>Troubleshooting</b>	<b>10</b>
<b>Specifications</b>	<b>10</b>



Follow the instructions when installing and using the winch system to avoid unnecessary safety risks.

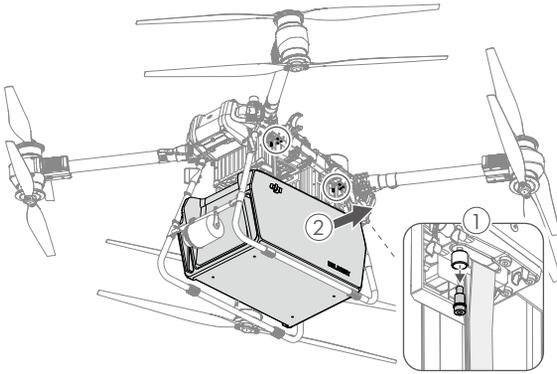
# Introduction

DJI FLYCART™ 30 Winch System enables aerial cargo loading and unloading in harsh environments where the aircraft cannot land. After installing the corresponding landing gear, the aircraft becomes easier to store and transport.

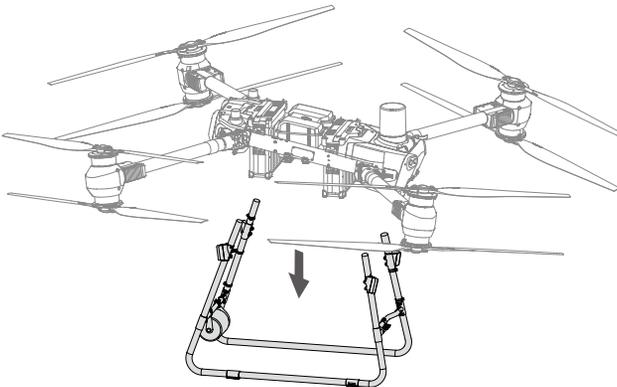
# Installation

Watch the tutorial video of the installation at <https://www.dji.com/flycart-30/video> before installing the winch system. Make sure to follow the steps and install the winch system correctly.

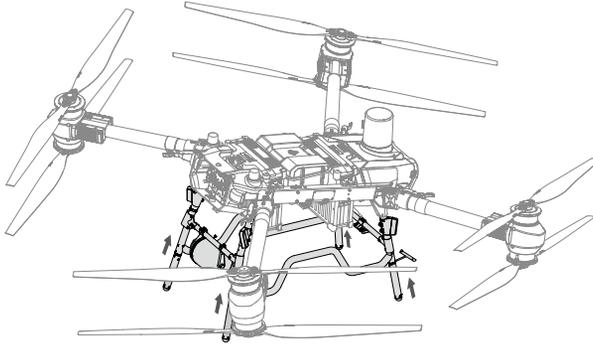
1. First, remove the cargo case straps and then remove the cargo case.



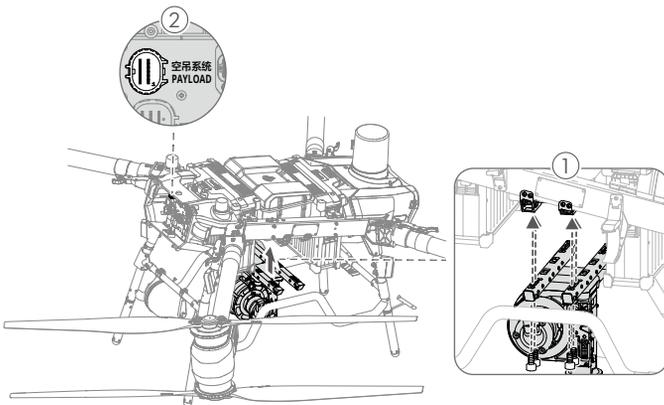
2. Remove the landing gear and the rear radar.



3. Install the provided landing gear that is to be used with the winch system, as well as the extension landing rods for the landing gear and the front and back rods. Reinstall the rear radar.



4. Attach the winch system with the M4×12 screws, and connect the winch system cable to the payload port of the FlyCart 30.



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-  • Remove the sticker on the winch system before first use.
- It is recommended to use screw adhesive on the M4×12 screws when installing the winch system.
  - The winch system landing gear must be used to avoid damaging both the radar and the landing gear during cargo delivery.
  - Make sure the extension landing rods are mounted firmly, and the rubber strap has been tightened. Extension landing rods can be removed during transport to reduce the size of the aircraft.
-

## Cargo Mounting Methods

Select how to mount the cargo according to the cargo volume and method of transportation.

- ⚠ • The cables that come with the package are to be used only on the winch system itself, DO NOT use them to secure the cargo.
  - DO NOT let the cable make contact with sharp objects, as to avoid damage. Replace the cable if it is damaged.
  - The minimum weight of cargo for the winch system is 5 kg. The maximum weight is 30 kg when in dual battery mode and 40 kg in single battery mode.
  - The extension cable can be used when there is a large volume of cargo that cannot be placed within the landing gear or if the density of the cargo (e.g. a steel block) is so great that it may damage the aircraft.
- 💡 • It is recommended to install the counterweight to avoid having the cable get stuck or reel up in reverse. Attach the counterweight to the hook of the winch system by tightening the screws.

### Mounting a Small Cargo Volume

When there is a small volume of cargo and it can be placed within the landing gear, users can secure the cargo with ropes and hang it by the hook of the winch system.

- If the cargo only needs to be delivered once, leave a rope length between 20 cm and 40 cm and secure it with a knot. Hang the cargo on the hook using the rope loop, as shown in Figure 1. Make sure the hook can move freely within the rope loop.
- If the cargo needs to be delivered for several times, use a runway type carabiner ( $\geq 8$  mm diameter) or a steel ring ( $\geq 5$  mm diameter) and fix to the end of the rope, as shown in Figures 2 and 3.

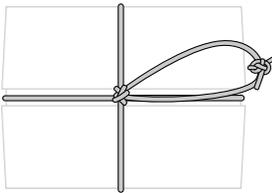


Figure 1

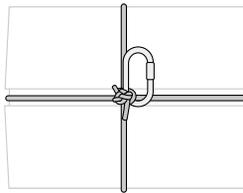


Figure 2

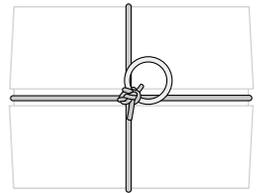


Figure 3

- ⚠ • DO NOT tie a knot on the hook directly. Otherwise, the cargo cannot be released automatically.
- The ropes prepared by user are required to be  $\geq 6$  mm in diameter. Make sure the ropes are in good condition and durable.

## Mounting a Large Cargo Volume

When the cargo is too large to place within the landing gear, or the density of the cargo is so great (e.g. a steel block) that it may damage the aircraft during delivery, an extension cable should be used. The two ends of the extension cable should connect to the winch system and cargo, respectively.

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- 💡 • Extension cables are provided in the winch system package.
  - If users are planning to use a steel extension cable, it is recommended that a galvanized steel wire rope with a  $\geq 3$  mm diameter is used.
  - Both a rotating ring and carabiner need to be used with the extension cable. The carabiner and extension cable need to be attached to the different sides of the rotating ring.
- 
- ⚠️ • The length of the extension cable should be less than 0.4 m or greater than 5 m. Otherwise, the cargo will swing back and forth, consequently affecting flight safety.
  - Check to make sure the extension cable is in good condition before each flight.
    - a. Check to make sure the extension cable is smooth, and be sure to undo any knots if any are found.
    - b. Check if the carabiner can be closed normally. If not, replace it before using.
    - c. Check to make sure the extension cable is not broken. If it is, replace it before using.
    - d. Check if the extension cable is attached to the correct side of the rotating ring.
- 

## Weight Sensor Calibration

When the aircraft is hovering without payload but the measured weight does not equal 0, weight sensor calibration is needed.

### Calibration Procedure

1. Take off and hover at 5 m with no payload for 10 seconds.
2. In DJI Pilot 2 Camera View, tap **•••** >  > Tethered Descent Calibration > Weight Sensor Calibration.

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- ⚠️ • It is recommended to calibrate the weight sensor at least once a month to ensure accuracy.
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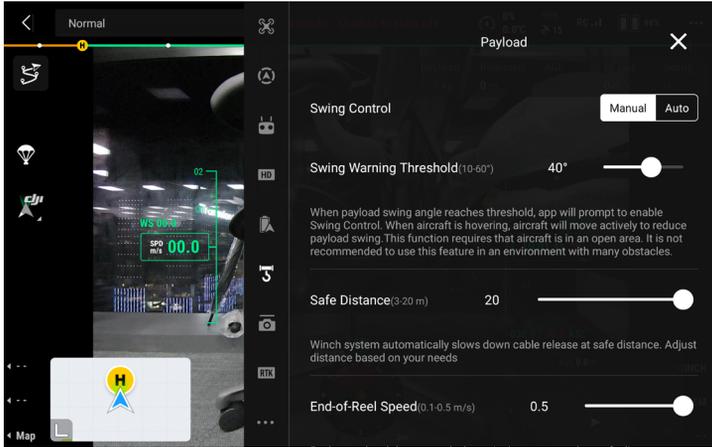
# Delivery

## Tethered Descent

Tethered Descent mode controls the ascent and descent of cargo via the cable.

## DJI Pilot 2 Settings

In DJI Pilot 2 Camera View, tap **•••** >  and enter the settings page of the winch system.

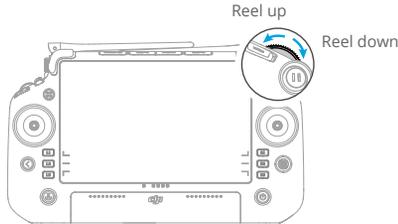


Swing Control	When the swing angle is too great, use the Swing Control to help lessen or eliminate the swinging. Auto: The aircraft will move automatically to help eliminate swinging when hovering in place. Manual: When the swing angle of the cargo reaches the swing threshold, there will be a prompt to enable swing control. Press the flight pause button once to stop swing control.
Swing Warning Threshold	When the swing angle reaches the threshold, a prompt will appear.
Safe Distance	The winch system will start to reduce the reel down speed when the cargo reaches the Safe Distance.
End-of-Reel Speed	The winch system automatically slows the speed of the cable reel down at the preset Safe Slowdown Distance.
Tethered Descent Calibration	Tap to calibrate the winch system.
Repair Mode	When enabled, repair mode allows the user to manually unwind the cable if stuck. Pull out the cable manually or use the right dial of the remote controller to control the cable.

## Cable Control

In Tethered Descent mode, use the right dial of the remote controller to control the cable.

- Push the dial to the left to reel up the cable and push the dial to the right to reel down the cable.
- The greater the dial movement, the faster the speed. When the cable has been reeled almost all the way up and the hook comes near the winch system, the reel up speed will slow down automatically. When the cable is being reeled down, the reel down speed will be reduced when the cargo height reaches the Safe Slowdown Distance.



## Loading Process

Cargo can be loaded on the ground or while the aircraft is still in the air.

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- ☀ • Check if the cable can be controlled normally before loading cargo. When the aircraft is on the ground, push the right dial to the right to reel down the cable. Make sure the hook can touch the ground. Otherwise, check if the cable has been reeled up in reverse. Enable Repair mode in DJI Pilot 2, and unwind the cable manually. Disable Repair mode once finished.
- 

## Loading Cargo on the Ground

1. When the aircraft is on the ground, push the right dial to the left until the cable length shows 0 m in the app.
2. Hang the cargo on the hook. If an extension cable is used, make sure it goes through the landing gear from the bottom.
3. Check to make sure the cargo is firmly secured and will remain stable in flight.

## Loading Cargo in the Air

Loading cargo in the air means the aircraft will not land on the ground.

- 
- ⚠ • Loading cargo in the air is dangerous, make sure to follow the instructions carefully.
  - DO NOT load cargo while directly underneath the aircraft.
  - Make sure the area is clear and there are no other people around, and that the aircraft is in T mode.
-

1. Fly the aircraft to a point above the cargo, and hover at a height of about 15 m.
2. Push the right dial of the remote controller to the right to reel down the cable until the hook touches the ground.
3. Fly the aircraft to a height of 10 m, and then fly forward (or in any direction where there are no people) 10 m and hover. The person loading the cargo should be wearing goggles and a helmet while loading the cargo.
4. Hang the cargo on the hook and close the hook manually before locking the safety lock.
5. Check to make sure the cargo is firmly secured and will remain stable in flight.
6. After the ground support staff reaches a safe area, fly the aircraft to a point above the cargo and hover, then ascend vertically. When the cargo has left the ground, reel the cable up until the cable length is 0 m. If the cargo swings severely when the cable is reeled up, stop and wait for the cargo to steady before continuing.

## Unloading Process

1. Inform the ground support staff in advance that the aircraft is flying towards the cargo unloading point. Slow down when the aircraft is 100 m away from the cargo unloading point.
2. Adjust the aircraft height to be between a maximum of 20 m and a minimum of 3 m after reaching the cargo unloading point. When the aircraft is hovering in place, tap the gimbal tilt adjustment icon  to point the FPV camera downward, and the AR projection will point at the ground. Tap the cable release button , and the cable will begin to reel down. The hook will open automatically once the cargo touches the ground.
3. Push the right dial of the remote controller to the left to reel up the cable until the cable length is 0 m. Fly the aircraft away from the drop point in the desired direction, allowing ground support staff space to pick up the cargo. If the cargo was not successfully released, tap the cable release button again and then lower the aircraft after the cargo touches the ground. This allows the hook to release from the cargo more easily.



- ⚠ • Make sure the hook has a firm hold on the cargo. DO NOT reel the cable up or down during flight.
- DO NOT move the aircraft during cargo unloading.
- If the hook is swinging severely while the aircraft is hovering, DO NOT reel up the cable. Instead, continue to reel down the cable until the hook touches the ground. DO NOT continue to reel down the cable after the hook is on the ground. Otherwise, it may cause issues when the cable is being reeled up, such as the cable being reeled up in reverse or getting stuck.
- When the cable is being reeled down, make sure that the aircraft is set to T mode to avoid having the cargo swing.
- Flight Task cannot be used when the cable is being reeled down. When the aircraft is hovering, reel up the cable until the length is 0 m before using Flight Task.

## Troubleshooting

Scenario	Resolution
Cable length displayed in the app won't show as 0 m	Release the cable and then reel it up. After landing the aircraft, check if there is foreign matter or debris in the winch system.
The cable has a knot, has been reeled up in reverse, or is stuck	Land the aircraft and enable Repair mode to unwind the cable manually. Disable Repair mode when finished.
Extension cable cannot be released after tapping the release button in the app	Push the right dial on the remote controller to reel down the cable manually.
Cable is stuck in trees or stuck on something else and the aircraft cannot fly	Tap the Cut Cable icon  to cut the cable off, ensuring flight safety.

## Specifications

Model	A2EWH-30A
Weight	3.1 kg
Max Payload	30 kg (Dual Battery Mode), 40 kg (Single Battery Mode)
Cable Length	20 m
Extension Cable Length	5 m
Counter Weight	1.9 kg
Power Supply Voltage	52.22 V (Standard Voltage), 59.92 V (Max Voltage), 42 V (Min Voltage)
Weight Accuracy	±3 kg

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<https://www.dji.com/flycart-30/downloads>

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