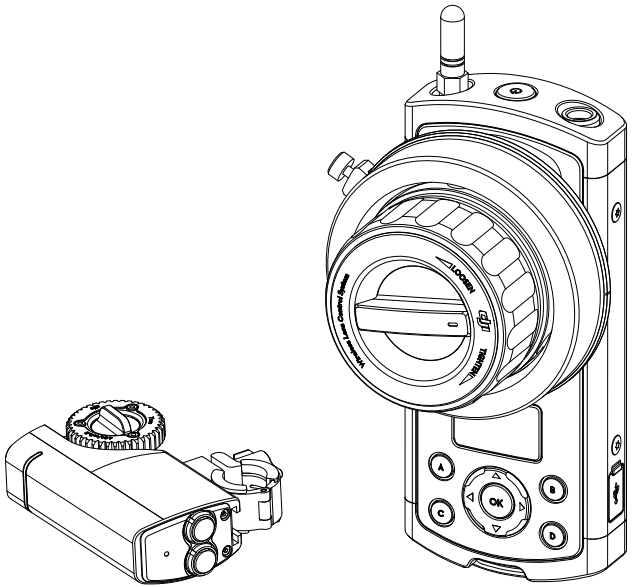
DJI FOCUS User Manual

V1.2 2015.12



Searching for Keywords

Search for keywords such as “battery” and “install” to find a topic. If you are using Adobe Acrobat Reader to read this document, press Ctrl+F on Windows or Command+F on Mac to begin a search.

Navigating to a Topic

View a complete list of topics in the table of contents. Click on a topic to navigate to that section.

Disclaimer and Warning

Congratulations on purchasing your new DJI product. The information in this document affects your safety and your legal rights and responsibilities. Read this entire document carefully to ensure proper configuration before use. Failure to read and follow instructions and warnings in this document may result in serious injury to yourself or others, or damage to your DJI product or damage to other objects in the vicinity. This document and all other collateral documents are subject to change at the sole discretion of DJI. For up-to-date product information, visit http://www.dji.com and click on the product page for this product.

By using this product, you hereby signify that you have read this disclaimer and warning carefully and that you understand and agree to abide by the terms and conditions herein. You agree that you are solely responsible for your own conduct while using this product, and for any consequences thereof. You agree to use this product only for purposes that are proper and in accordance with all applicable laws, rules, and regulations, and all terms, precautions, practices, policies and guidelines DJI has made and may make available.

DJI accepts no liability for damage, injury or any legal responsibility incurred directly or indirectly from the use of this product. The user shall observe safe and lawful practices including, but not limited to, those set forth in this document.

Using this Manual

Legend

WARNING Warning: Failure to properly follow procedures may result in property damage, collateral damage, and serious or superficial injury.

CAUTION Caution: Failure to properly follow procedures may result in property damage and serious injury.

NOTICE Notice: Failure to properly follow procedures may result in property damage, a small possiblity of injury, or no possibility of injury.

TIPS Tips

Before You Begin

The following documents have been produced to help you safely operate and make full use of your DJI Focus:
DJI Focus Quick Start Guide
DJI Focus User Manual

Check all of the included parts listed in the *In the Box* section below. Read this entire User Manual and watch the informational on the product page of DJI's official website (http://www.dji.com/product/focus). Read the disclaimers and warnings above to understand your legal rights and responsibilities. If you have any questions or problems during the installation, maintenance or use of this product, please contact DJI or a DJI authorized dealer.

The content is subject to change.

Download the latest version from
http://www.dji.com/product/focus

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Introduction

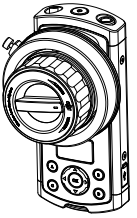
DJI Focus is a wireless follow focus system that comprises of a remote controller and motor unit. The low noise motor produces 25 dB of noise at 96 rpm, and has a maximum speed and torque of 192 rpm and 0.35 Nm respectively. The system can be operated in wireless mode or cable mode.

In the Box

Check that all of the following items are included in the package. If any items are missing, contact DJI Support or your local DJI authorized dealer.

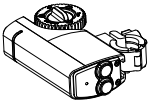
Remote Controller ×1

Handheld unit which controls the motor remotely.



Motor ×1

Mounted on the camera to control the lens.



Antenna ×2

Amplifies the remote controller's signal.

Motor Power Cable ×2

Connects the motor to the power supply.
Lengths: 40 cm and 75 cm.

Data Cable ×1

Used in cable mode and for firmware updates.

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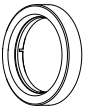
Micro USB Cable ×1

Use to charge or upgrade the remote controller.

Marking Ring ×3

Mark down the focus values for individual lenses on this ring for reference.



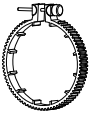
Lens Gear Ring ×4

0.8 Mod, 105 Teeth
Inner Diameter: 60 mm

0.8 Mod, 105 Teeth
Inner Diameter: 70 mm

0.8 Mod, 105 Teeth
Inner Diameter: 80 mm

0.8 Mod, 105 Teeth
Inner Diameter: 90 mm



Neck Strap ×1

For carrying the remote controller around the neck or over the shoulder between takes.

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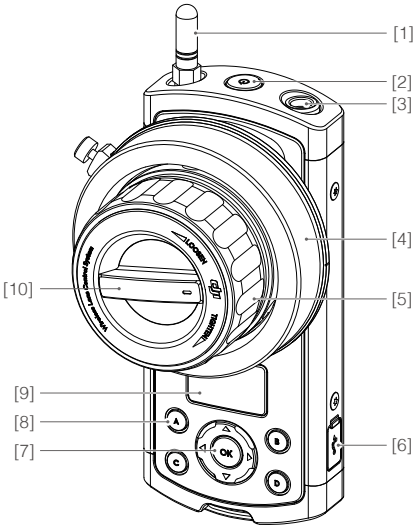
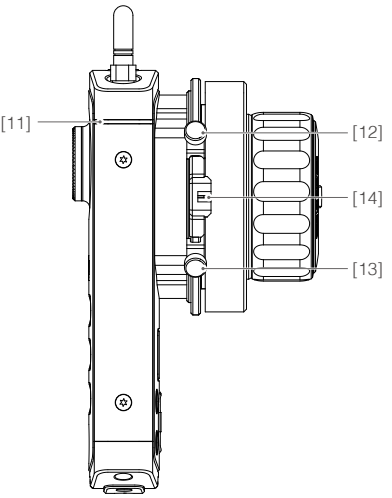
Remote Controller





[1] Antenna
Transmits at 2.4 GHz.

[2] Power Button
Press and hold for 2 seconds to power on/off the remote controller.

[3] Communication Port
Allows the motor to communicate with the remote controller.
Allows the motor to be upgraded.

[4] Marking Ring
Used to provide marking scale.

[5] Focus Wheel
Used to adjust the lens of your camera.

[6] Micro USB Port
Used to charge or update the remote controller.

[7] Navigation Buttons
Allows you to navigate through menu items.

[8] Quick Focus Buttons
Assign focus points to buttons A, B, C and D for quick access.

[9] OLED Screen
Displays the menu, system status and battery level.

[10] Stiffness Control
Adjusts the stiffness of the focus wheel.

[11] System Status Indicator
Indicates the system status of the remote controller.

[12] [13] Hard Stop Screws
Adjustable hard stops to limit the travel range of the focus wheel.

[14] Backlight
Illuminates the marking ring from behind.

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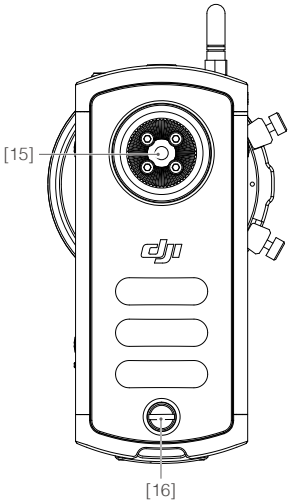
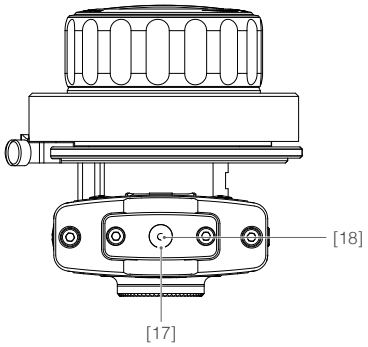




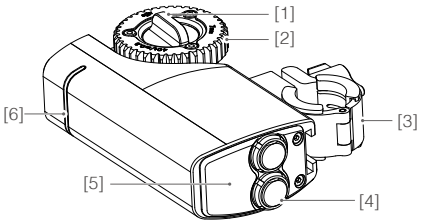
[15] Rosette Mount
For mounting accessories.

[16] Rear Screw
Needs to be removed in order to take off the battery cover for battery replacement.

[17] Lanyard Hole
Used to attach the neck strap.

[18] Link Button
Used to link the remote controller to the motor or enter forced update mode.

Motor



[1] Gear Knob
Secures the gear to the motor.

[2] Gear
Turns the gear ring on the camera lens.

[3] Quick-Release Mount
For mounting the motor onto the camera. The position of the mount can be adjusted by sliding the mount upward or downward.

[4] Communication Ports
The two communication ports are identical. Connect one port to an external power supply, and, if you want to enable cable mode, connect the other port to the controller.

[5] Link Button
Used to link the motor to the remote controller.

[6] System Status Indicator
Indicates the system status of the motor.

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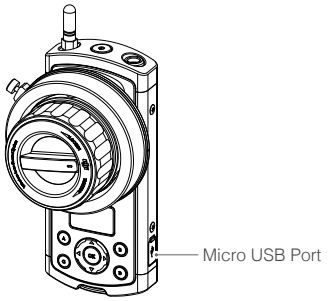
Getting Started

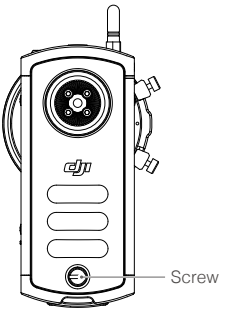
Prepare the Remote Controller

Charge the Battery

The remote controller contains a 1700 mAh battery that can power the device for up to 14 hours. Charge the battery through the Micro USB port located on the side and check the battery level on the OLED screen.

To replace the battery, remove the screw and battery cover on the back of the remote controller.

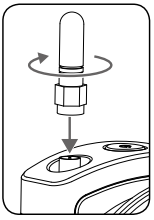


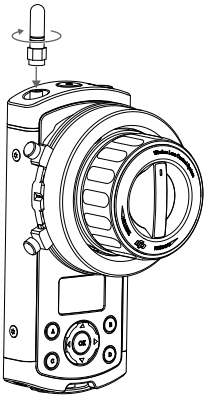


WARNING
- Only use official DJI batteries that can be purchased on www.dji.com. DJI takes no responsibility for any damage to your devices caused by non-DJI batteries.
- Never use swollen, leaky, or damaged batteries. If your batteries show any abnormal signs in performance, contact DJI or a DJI authorized dealer for assistance.
- Never disassemble or pierce the battery in any way, or else the battery may leak, catch fire, or explode.
- DO NOT attach the batteries to wall outlets or car charger sockets directly, and always use a DJI approved adapter. DJI takes no responsibility if the battery is charged using a third party charger.

Installing the Antenna

Screw the antenna onto the top of the remote controller. Remove the antenna during transportation or when placing back into the case.





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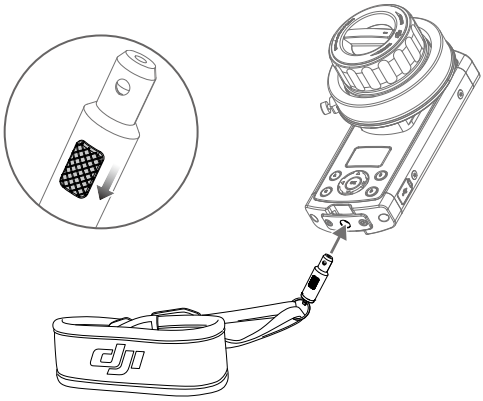
Attaching the Neck Strap

Pull down and hold the button on the neck strap connector, slide it through the mounting hole on the bottom of the remote controller, and then release the button.

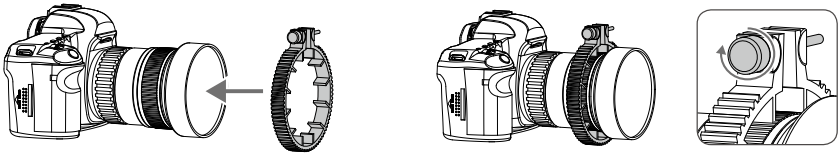


CAUTION Ensure the neck strap is attached securely.

Mounting the Lens Gear Ring

DJI Focus comes with four sizes of lens gear rings. Choose the lens gear ring that best fits your camera lens.

Ensure the screw is tight and that the lens gear ring makes good contact with the lens.



NOTICE Ensure the lens gear ring screw is installed properly to allow an unobstructed full range of motion.

TIPS • You may also use a standard 0.8 Mod lens gear ring of your own.
• The lens gear ring is not required if you are using a cinema camera with gear rings.

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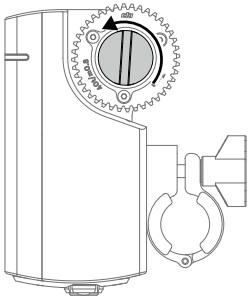
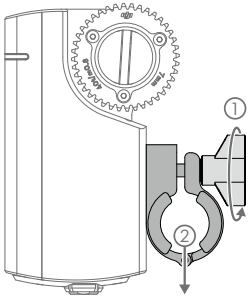
Prepare the Motor

The motor gear can be mounted on either side of the motor. To remove the gear, loosen the knob at the center the gear. Ensure the gear is mounted securely.

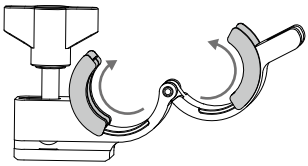


The motor can be clamped to a 15 or 19 mm support rod. To clamp the motor to a 19 mm support rode, first remove the two adapters on the clamp:

1. Loosen the knob and remove the quick-release mount.



2. Push the knob away from the clamp and open up the clamp. Slide and remove the two adapters on the clamp.



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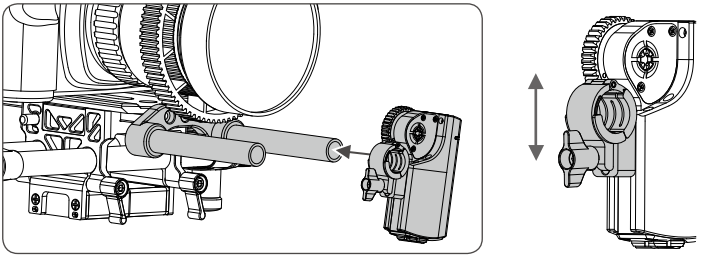
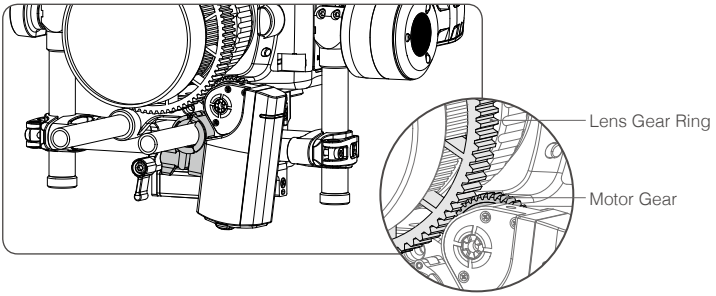
Mounting the Motor

To mount the motor onto your camera support rod:

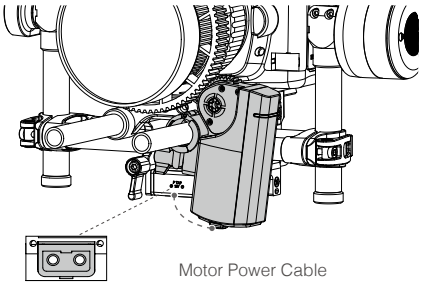
1. Loosen the knob on the quick-release mount and slide the motor onto the support rod. Tighten the knob to secure the motor's position on the support rod.



2. Tighten the knob to secure its position. Ensure the motor gear and lens gear ring make good contact. Ensure the lens gears are not too tight to avoid premature wear to the gears or damage to the lens.



3. Connect the power port on the motor to an external power source using the supplied power cable. If your camera is mounted on the Ronin-M, connect the motor to the P-TAP Accessory power port on the Ronin-M.



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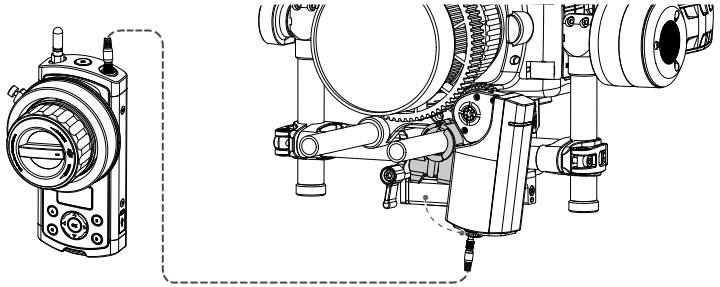
CAUTION
- Ensure the motor is mounted firmly.
- Keep your fingers, hair and clothing away from the motor when it is in operation.

4. DJI Focus can work in wireless mode or cable mode. To use cable mode, connect the communication port on the remote controller to the communication port on the motor using the signal cable.



TIPS
- Cable mode will take precedence over wireless mode.
- Ensure the motor is connected to an external power supply.

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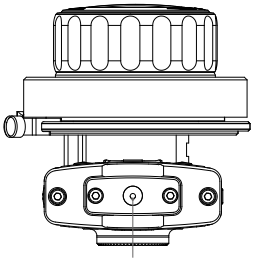
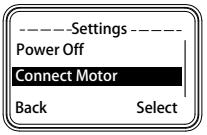
Linking

Linking is only required when the remote controller or motor is replaced with a new one.

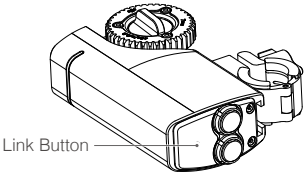
To link the remote controller to the motor:

1. Turn on both devices.
2. Press the link button on the bottom of the remote controller, or use the navigation buttons to enter **Menu** → **Settings** → **Connect Motor** → **Connect**.





3. Within the next 5 seconds, press the link button on the motor.



4. The system status indicators on both the remote controller and motor will blink slowly to indicate that linking is successful.

System Status Indicator

The system status indicator is a white LED that is located on both the remote controller and motor.

Remote Controller	Description
Solid light	RC is connected to the motor and functioning normally. / Forced update.
Blinks quickly (4 times per second)	RC is disconnected from the motor. / RC is charging.

Motor	Description
Solid light	RC is connected to the motor and functioning normally. / Forced update.
Blinks quickly (4 times per second)	RC is disconnected from the motor. / Overcurrent Protection.

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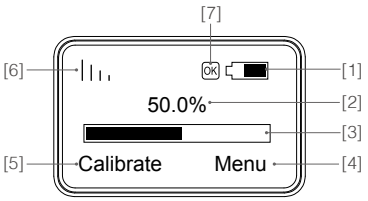
Settings

When both the remote controller and motor are turned on. The OLED screen of the remote controller will display the following information.



[1] Battery Level

[2] Focus Wheel Travel Percentage

[3] Focus Wheel Travel Bar

[4] Main Menu

[5] Calibration Menu

[6] Wireless Signal Strength

[7] Calibration Status

Calibration

The motor remembers your last calibration and does not need to be re-calibrated every time it is turned on unless you swap lenses or change the motor position after the motor has been shut off. It is recommended to perform a calibration in order for the motor to find the end points on a lens when installing the motor.

If your camera lens has mechanical limits, use auto calibration. Otherwise, use Manual-Remote or Manual-Hand calibration.

Auto

On the remote controller, select **Calibrate** → **Auto** (Shortcut: Press the 'A' and 'B' buttons together). The motor gear will rotate in each direction in turn to locate the mechanical limits of your camera lens. When the calibration is complete, select **Back** to apply the calibration or **Stop** to cancel.

Manual-Remote

Select **Calibrate** → **Manual-Remote** → **Start** to begin. Hold down the up arrow to rotate the lens in one direction, and select **OK** when it reaches the desired upper limit. Next, press the down arrow to rotate the lens in the other direction, and select **OK** when it reaches the desired lower limit.

Note: You will be reminded if the motor reaches its mechanical limits.

Manual-Hand

Select **Calibrate** → **Manual-Hand** → **Start** to begin. Rotate the lens manually to the desired upper and lower limits of your camera lens, and select **OK** to confirm the limits.

When the calibration is complete, select **Back** to apply the calibration or **Stop** to cancel.

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TIPS The motor will automatically reserve a 1mm margin at both mechanical limits for protection.

When to Calibrate

1. If there is an 'OK' icon on the OLED screen, the motor is working normally and does not need calibration.

2. If there is an 'OK' icon on the OLED screen but it is blinking, the motor was moved to a different mounting position and needs to be re-calibrated.

3. If no 'OK' icon is on the OLED screen, the motor is not responding to the remote controller accurately and should be calibrated.

Menu

Press the right arrow or OK button to enter the Menu.
Set the motor and system parameters and check the firmware version on this page.

Motor Parameters

Calibration Torque: The motor torque used for calibration-min, normal or max.
Run Torque: The motor torque used for normal operation-min, normal or max.
Speed: The rotational speed of the motor-slow, medium or fast.
Acceleration: The acceleration of the motor-slow, medium or fast.

Rack Speed: The speed at which the motor moves between the preset focus points A, B, C and D. The rack speed ranges from 1% to 100%, and is proportional to the motor speed and acceleration.
Direction: The motor's direction of rotation-normal or reversed.
Default: Restore the default motor parameters.

Settings

Power Off: Idle time before the remote controller auto-powers off-10 min, 30 min, 60 min or never.
Connect Motor: Select Link and then press the link button on the motor to start linking.
Endpoints: The upper and lower travel limits of the focus wheel. Turn the focus wheel to the desired upper travel limit and select Set Point 1. Then, turn the focus wheel to the desired lower travel limit and select Set Point 2. Turning the focus wheel from Point 1 to Point 2 will rotate the camera focus by a full cycle.
LED Control: Enable or disable the LED and system status indicators on the remote controller and motor individually.
Default: Restores the default settings for the remote controller.

About

Displays the current firmware version of the remote controller.

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Quick Focus

Allows rapid switching between four preset focus points.

Assigning a Focus Point

Adjust the lens focus to the desired focus point by turning the focus wheel. Hold down one of the letters until it blinks to store the focus point. To reassign a focus point, press and hold the letter to discard its value, and then redo the first step.

Switching to a Focus Point

Press one of the letters to apply its assigned focus point. The OLED screen will display the active Quick Focus letter. The selected letter will light up and the remaining letters will blink rapidly. Press the active letter again to exit Quick Focus.

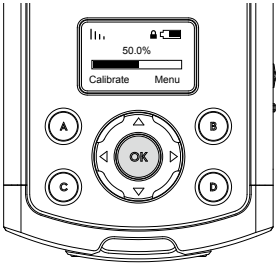
TIPS

- After selecting a Quick Focus button, you can fine tune the focus by turning the focus wheel without changing its assigned value.
- There are mechanical limits on both the focus wheel and motor. If the motor does not respond to the focus wheel, check if the motor has reached its mechanical limit.

Locking the Remote Controller

The remote controller can be locked to avoid unintentional operations. All controls except the power button and OK button are disabled in the locked state.

To lock the remote controller, press and hold the OK button until a lock icon appears on the OLED screen. Repeat this procedure to unlock the remote controller.



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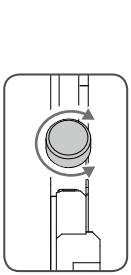
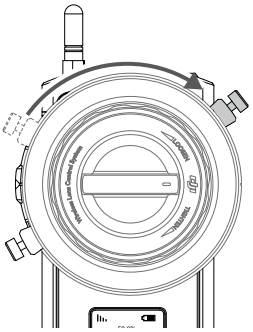
Focus Wheel Settings

Setting Mechanical Limits

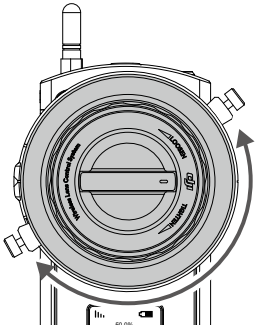
The two adjustable hard stop screws around the focus wheel can be used to limit the travel range physically.

1. Loosen the hard stop screws, slide them to the desired positions and tighten.



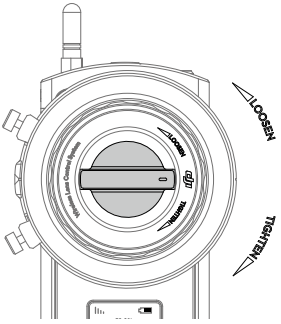


2. The travel range of the focus wheel is now limited to the distance between the two hard stop screws.



Adjusting the Stiffness

Turn the control knob at the center while holding the focus wheel to adjust the stiffness of the wheel. Adjust the focus wheel until it reaches a stiffness or looseness that feels comfortable.



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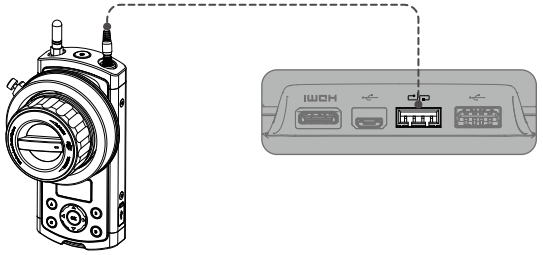
Used with the Zenmuse X5

DJI Focus is fully compatible with the Zenmuse X5 series gimbal and camera. No calibration is required when using the Focus with the Zenmuse X5 camera.

Connection

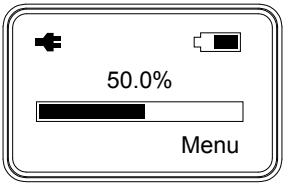
To allow communication between the two devices, connect the communication port on the Focus remote controller to the CAN Bus port on the Inspire 1 remote controller using the dedicated CAN Bus cable.



TIPS
- Ensure that the Zenmuse X5 camera is set in AF mode.
- The remote controller overrides the in-app controls. You will not be able to adjust the focus or aperture in the DJI GO app.
- You can purchase the dedicated CAN Bus cable on the DJI Store.

Settings

The Focus remote controller will display the following information when it is connected to the Inspire 1 Pro or Raw system.



Zenmuse X5 Settings

Aperture: Enable or disable aperture control.
Direction: The motor's direction of rotation – normal or reversed.
Default: Restore the default motor parameters.

Settings

Power Off: Idle time before the remote controller auto-powers off-10 min, 30 min, 60 min or never.
Endpoints: The upper and lower travel limits of the focus wheel. Turn the focus wheel to the desired upper travel limit and select Set Point 1. Then, turn the focus wheel to the desired lower

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travel limit and select Set Point 2. Turning the focus wheel from Point 1 to Point 2 will rotate the camera focus by a full cycle.

LED Control: Enable or disable the LED and system status indicators on the remote controller and motor individually.
Default: Restores the default settings for the remote controller.

About

Displays the current firmware version of the remote controller.

Aperture Control

Once aperture control is enabled, the 'D' button is used to switch between focus control and aperture control.
To switch from focus control to aperture control, press the 'D' button and then follow the instructions in the DJI GO app to operate the focus wheel. Press the 'D' button again to switch back to focus control.

Firmware Update

The DJI Focus firmware can be updated through the DJI PC/MAC Assistant.

Installing the DJI PC/MAC Assistant

Windows

1. Download the DJI WIN DRIVER INSTALLER and Assistant from the DJI Focus product page on DJI.com.
2. Double click the Assistant installer and follow the steps to finish the installation. Then, launch the Assistant.

TIPS The Assistant installer can be used on Windows XP (32 or 64 bit) or above.

Mac OS X

1. Download the Assistant installer (.DMG) from DJI.com, and then run the installer and follow the prompts to finish the installation.
2. When launching for the first time, if using Launchpad to run the Assistant, Launchpad will block access because Assistant has not been reviewed by the App Store. Locate the Gimbal icon using the Finder, press Control, then click the icon (or right-click the icon using a mouse). Choose Open from the shortcut menu, then click Open in the dialog box to launch the program.
3. After the first successful launch, double click the Gimbal icon, as usual, to launch the program using the Finder or Launchpad.

TIPS The DMG installer supports Mac OS X 10.9 or above.

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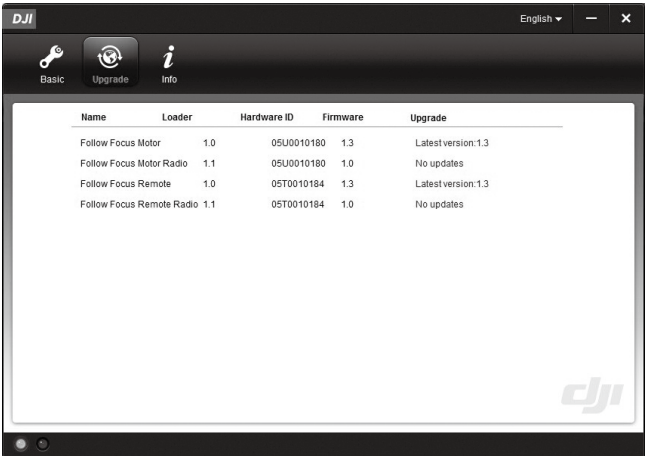
Upgrade

You can view the latest firmware versions of all components on this page.



Upgrading the Remote Controller

Turn ON the controller and connect it to your computer via the Micro-USB cable and wait until the indicator LED in the Assistant blinks blue. Click Upgrade to upgrade the Follow Focus Remote, and then upgrade the Follow Focus Remote Radio.

Upgrading the Motor

Turn on the controller, and connect to the motor through data cable, then connect the controller to your computer. Click “Upgrade” to upgrade the Follow Focus Motor, and then upgrade the Follow Focus Motor Radio.

Forced Upgrade

Use Forced Upgrade if the remote controller or motor firmware upgrade fails. To initiate Forced Upgrade, power on the remote controller or motor while holding down the link button.

NOTICE
- Ensure your PC is connected to the Internet.
- Close any antivirus programs and network firewalls.
- Ensure that the controller or the motor is powered on during the upgrade.
- Do not disconnect the USB cable during the upgrade.

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Troubleshooting

The motor does not respond to the remote controller.

1. Make sure you have calibrated the motor at least once. The motor will not respond unless it has been calibrated for the first time.
2. Check for any bent or damaged pins on the data cable plugs. Replace the cable if necessary.
3. Ensure the polarity of the power cable is correct and the P-Tap is firmly connected to the power supply.
4. Try connecting the motor to the remote controller directly using the data cable.
5. Try re-linking the motor to the remote controller.

Specifications

General	
Operating Frequency	2.415-2.473 GHz
Max Transmission Distance	100 m (outdoors and unobstructed)
Transmitter Power	14 dBm
Operating Temperature	-20° to 55° C
Motor	
Weight	170 g
Dimensions	90×50×26 mm
Max. Torque	0.35 Nm
Max. Speed	192 rpm
Operating Current	Free current: 80 mA (@12 V) Stall current: 2 A (@12 V)
Operating Voltage	9-16 V
Noise	<25 dB (@96 rpm)
Rob Clamp Inner Diameter	15 or 19 mm
Gear	0.8 Mod, 40 Teeth
Remote Controller	
Weight	745 g
Dimensions	153×86×90 mm
Battery	Model: FB01-554461 LiPo 3.7 V, 1700 mAh, 6.29 Wh

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If you have any questions about this document, please contact DJI by sending a message to DocSupport@dji.com.

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