

# SOME NOTES ON BALANCING, CONFIGURING, AND OPERATING THE RONIN-SC GIMBAL

Thrown together by David Tamés, revised on April 7, 2022, you can download a PDF of the most recent version of these notes from: <https://tinyurl.com/ronin-sc-notes/>

The Ronin-SC is a light and portable 3-axis gimbal made for mirrorless cameras. These notes are designed to help you get started using this gimbal. If this is your first time, read the safety information in the DJI Ronin-SC manual (see below).

Do you have any suggestions for improving these notes? Send them to [d.tames@northeastern.edu](mailto:d.tames@northeastern.edu). These notes are released to the public domain. The author makes no warranty, expressed or implied, as to the suitability or accuracy of these notes.

## •> COMPATIBLE CAMERA AND LENS COMBINATIONS

Ronin-SC camera/ lens compatibility info may be found at: <https://www.dji.com/support/compatibility?product=ronin-sc>.

**Heavy combinations** like the Sony a7iii w/ Sigma 24-70 f/2.8 will not balance on the Ronin-SC. For heavier combos, use the larger Ronin-S that can carry heavier payloads. If you have a heavy camera, consider using a prime lens or a smaller zoom.

**MY CURRENT RIG** for gimbal work consists of a Panasonic GH5 with an Olympus 12-40 f/2.8 lens fitted with a form-fitted focus gear ring from FollowFocusGears <https://followfocusgears.com/> and this combo works well w/ Ronin-SC + Follow Focus Motor.

## •> KEY REFERENCES

DJI has created video playlist of Ronin-SC tutorials: <https://tinyurl.com/mix-ronin-sc-tutorials>

For important safety information and detailed instructions, see the Ronin-SC manual: [https://dl.djicdn.com/downloads/Ronin\\_SC/Ronin\\_SC\\_User\\_Manual\\_v1.0\\_en.pdf](https://dl.djicdn.com/downloads/Ronin_SC/Ronin_SC_User_Manual_v1.0_en.pdf)

## •> SETTING UP

- 1 // Attach battery and tripod
- 2 // Check battery level (start use with full battery (USB power plug on the front for charging))
- 3 // Install Camera on Camera Plate (with Riser if needed)
- 4 // OPTIONAL: install Focus Motor, requires riser and rod (see below)
- 5 // Install lens support for added stability

## •> BALANCING

If this is your first time balancing the gimbal, start by viewing the Balancing Tutorial <https://youtu.be/LDsucszkCp4> (DJI Tutorials), perform the balancing ritual in the following order:

- 1 // Balance **Depth** for the **Tilt Axis**
- 2 // Balance the **Vertical Tilt**
- 3 // Balance the **Roll Axis**
- 4 // Balance the **Pan Axis**

- 5 // Run **Balance Test** (requires use of the App; if test fails, rebalance, app tells you which axis is out of balance)
- 6 // Run **Autotune** (can be run without the App, see below)

## •> OPERATION AND CUSTOMIZATION

If this is your first time with the gimbal, see Ronin-SC Basic Operation: <https://youtu.be/QfzGwe30sUg> (DJI Tutorials).

**Check Battery Level** — press battery check button on the handle next to the row of LEDs, the battery can be charged via the USB connection at the front of the unit

**Axis Locks** — Always make sure that Pan Axis Lock, Tilt Axis Lock, and Roll Axis Lock are disengaged before powering on. Make sure they are re-engaged after power off and before transport to the next shooting location.

**Power on** — Press and hold the power button, when you hear a beep, Ronin-SC is powered on, it will make some adjustments

**Lock Camera Orientation** — Press and hold trigger, the LED will blink Green, this maintains the camera orientation

**Re-Center Camera Orientation** — Double Tap Trigger

**Point Camera towards operator** — Triple Tap Trigger

**Select Profile** — Press M1/M2/M3 button. These can be customized to remember your preference. By default, the three settings are:

- M1: Pan and Tilt Follow (speed: slow; deadband: medium)
- M2: Pan Follow (speed: slow; deadband: medium)
- M3: Pan and Tilt Follow (speed: slow; deadband: low)

**Configure Custom Profiles** for M1 / M2 / M3 can be configured and saved using the App based on your preferences, for example, on my own gimbal I have these configured as:

- M1: **Pan Follow** (speed: slow; deadband: low);
- M2: **Pan and Tilt Follow** (speed: slow; deadband: low); and
- M3: **Flashlight Mode** (speed: slow; deadband: low).

**Deadband** on the Ronin SC allows for the operator to wiggle the pan or tilt without it effecting the movement on the camera. You can use the App to adjust the movement threshold before the gimbal actually responds to your movements.

**Auto Tune** — Press Trigger and the M button at the same time for six seconds will initiate the auto tune function. Make sure all three axes are unlocked before doing this!

**System Calibration** — This requires use of the Ronin App. Select Status => System Calibration, this will help fix problems with the Gimbal drifting.

**Joystick Calibration** — Tap the trigger four times, holding the trigger down on the forth tap, the M1/2/3 LEDs will blink, rotate the the Joystick several times (make sure that the Joystick Input settings in the app are all centered or the calibration will fail) and then Tap the trigger four times to complete the calibration.

If the LEDs blink green, calibration was successful, if they blink red, the calibration has failed, you'll need to do this again.

**Sport Mode** — Press and hold the M button to enter SPORT MODE, the LED will turn YELLOW, as long as the Button remains pressed, you are in SPORT MODE, release the M button to Exit. You can LOCK the Sport Mode by double tapping the trigger while holding the M button. To exit LOCKED SPORT MODE, press and hold the M button, then release it.

**Flashlight Mode** — Press and hold trigger, then tilt gimbal horizontally, gimbal is now in Flashlight Mode.

**Underslung Mode** — Press and hold trigger, then tilt Ronin-SC upside-down, this will allow you to shoot in Underslung Mode; alternatively, you can temporarily disengage the motors by double-tapping the power button, and then tilt the Gimbal upside-down; move the roll axis to make sure the camera is in an upright position; then double tap the power button to re-engage the motors for shooting.

## •> CONFIGURING AND USING THE FOCUS MOTOR

See Ronin-SC | How to Assemble and Use the Ronin-SC Focus Motor (DJI Tutorials) <https://www.youtube.com/watch?v=s6sUUZZDc00> if this is your first time with the focus motor;

See also: Ronin SC Follow Focus Review - Is it worth it? (Definitely Matt) [https://www.youtube.com/watch?v=U\\_Q5FDpUM0Q](https://www.youtube.com/watch?v=U_Q5FDpUM0Q)

To calibrate the focus range of the lens, DOUBLE TAP FOCUS WHEEL BUTTON TWICE and the Ronin-SC will automatically calibrate the focus motor to match the extents of the lens; LED SOLID GREEN indicates it is done calibration; LED RED indicates something went wrong.

PRESS AND HOLD FOCUS WHEEL BUTTON and the rolling direction will be changed

To set an A and B point, move the wheel so that the lens is at focus point A and TAP FOCUS WHEEL BUTTON ONCE, the LED WILL FLASH GREEN SLOWLY, then move the wheel until the lens is at focus point B and then TAP FOCUS WHEEL BUTTON ONCE to record position B. LED WILL FLASH GREEN MORE QUICKY

Now the wheel will move the lens only in the range from Point A to Point B.

TAP FOCUS WHEEL BUTTON ONCE AGAIN to cancel the A-B range settings, LED WILL GO BACK TO SOLID GREEN, now the motor will travel along the entire extent of the focus range that was set when the focus motor was first calibrated.

## •> REFINING AND IMPROVING YOUR TECHNIQUE

Film yourself with TRACK MODE on the RONIN-S / RONIN-SC (MAKE. ART. NOW.) <https://www.youtube.com/watch?v=b1TtaTlhj7I>

**A good starter guide** is How To Get Good Gimbal Shots (Peter Lindgren) <https://www.youtube.com/watch?v=vM0At-S8F3U>

**Balance the gimbal properly** and test the balance using the App. The gimbal will perform better when it is balanced and the battery will last a lot longer. You are part of the Gimbal, or, the Gimbal is an extension of your arm! Think of it as an extension of your movement.

**1 // Perform slow movements** — unless fast for a reason

**2 // Perform smooth movements** — avoid bobbing motion when walking, walk smoothly, keep knees bent and walk heel to toe (practice this)

**3 // Ask yourself, why movement in the first place?**

Think about foreground, subject, and background, what is the movement doing metaphorically? Why are you moving the camera? What are you revealing? What are you hiding? What does the movement mean?

**4 // Underslung mode** is good for keeping the gimbal off the ground

**5 // Manual focus** pulls work best with focus motor

**6 // Set Modes for custom settings;** the responsiveness of the gimbal as a huge effect on your videos

**7 // Consider shooting through, under, around objects,** again, use them as part of your moving composition, ask yourself, what does this movement mean? Why are you moving?

**8 // Slide and pan ...** keep camera locked on center of frame

## •> ADDITIONAL VIEWING

Mercedes Magic Body Control Commercial, the basic idea behind three-axis gimbals, <https://www.youtube.com/watch?v=nLwML2PagbY>

Jaguar vs. Chicken Commercial, every good commercial deserves a response from the competition, <https://www.youtube.com/watch?v=FAG0cyvBap0>

7 CREATIVE Cinematic GIMBAL Shot Ideas (Sean Kitching), <https://www.youtube.com/watch?v=epzsBiiEpZo>

Don't buy a gimbal! Tips for shooting video handheld (Jesse Driftwood) <https://www.youtube.com/watch?v=Bj24pdXrGx4&t=3s>

Best Ronin-S Settings for Capturing Smooth Cinematic Video (Vlady Radev) <https://www.4kshooters.net/2018/09/04/best-ronin-s-settings-for-capturing-smooth-cinematic-video/> (most of this applies to the SC)