



Lens Focusing Guide

Revision: 2020-07-28

INTRODUCTION

This guide goes over how to manually focus a lens for a specific altitude (or distance from an object) to help ensure your photos are as sharp-as-possible. It is important to note that simply setting your lens to “infinity” may not always give you sharp photos because many lenses allow you to focus past infinity.


Do I need to use this guide?

If you point your camera at an object/scene far away and notice that the object/scene comes into focus and then goes out of focus as you twist the focus ring on your lens to infinity, then you need to use this guide (this can happen with fully manual lenses and lenses with electronic focus motors).

CONFIGURE YOUR CAMERA

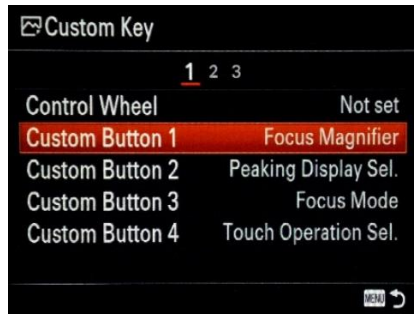
The following walks through the steps to assign the focus magnifier and peaking display to custom buttons on a Sony a7RIII. Doing this makes it easier to quickly access these helpful functions when precisely focusing your lens. You can follow a similar process if you are using a different camera model.

1. Set Custom Keys

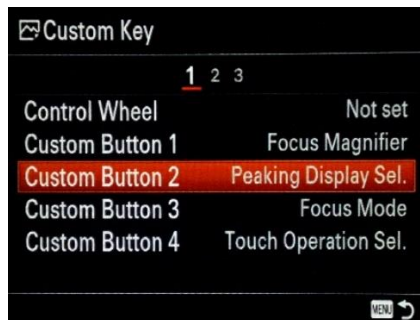
- Press the menu button and navigate to “**Custom Operation1**” page **8/9**.
- Select  **Custom Key**



- Set Custom Button 1 to Focus Magnifier.

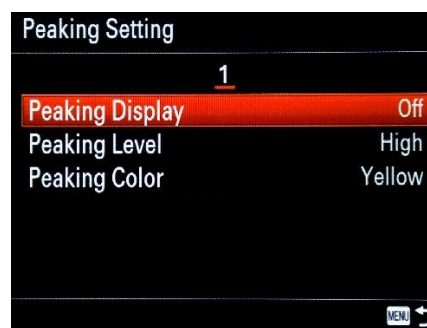


- Set Custom Button 2 to Peaking Display Sel.



2. Adjust the Peaking Settings

- Pressing the Menu button, navigate to “Focus Assist” page 13/14 of the menu and select “Peaking Setting”



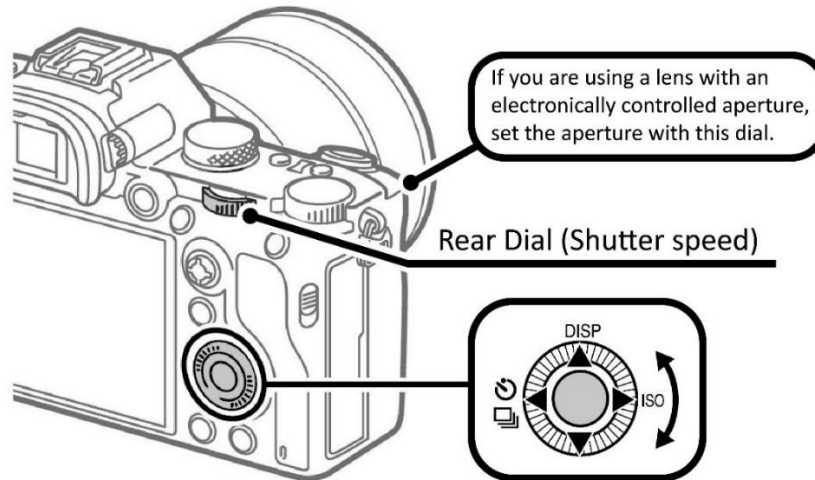
- For the Peaking settings, have them set to:
Peaking Display: Off
Peaking Level: High
Peaking Color: Yellow

3. Set the Exposure

Aperture: F5.6 (adjusted on the lens or using the dial on the front of the camera)

Shutter speed: 1/1000 (increase or decrease shutter speed to achieve good exposure)

ISO: 200 (to set the ISO, press the right side of the control wheel)



4. Active the Self timer

- Using the self-timer will give the tripod time to stop moving before the image is captured. Set self-timer to **10 sec** by first pressing the left side of the wheel, then pressing the bottom of the wheel to navigate down to Self-timer: 10 Sec. Press the center button to select it.

FOCUSING THE LENS AT A SPECIFIC DISTANCE

Make sure you have your camera, lens, SD card, a tripod, and a laptop.

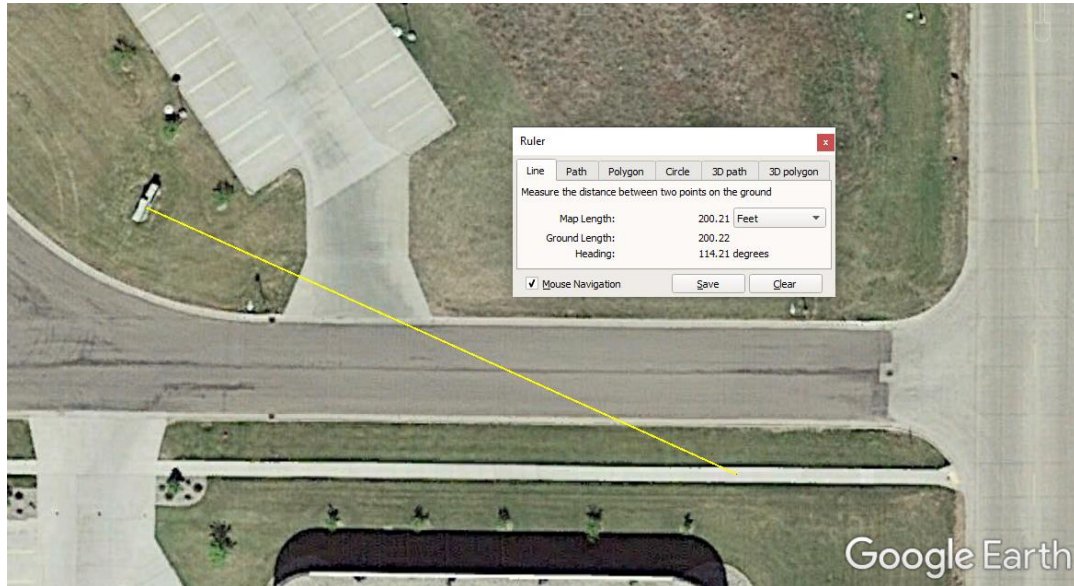
1. Choose an object to focus on

- Locate a flat object outside that has distinct edges and crisp details within it. We recommend choosing something like a large sign on/for a building.
- If it is a sunny day, be sure the sign is not shadowed.



2. Figure out where to set up your tripod

- Use Google Earth and its ruler tool to measure a distance equal to your planned AGL flight altitude (you can also measure out the distance outside using a long tape measurer if you have one).
- Example: If you plan on flying at 200 feet AGL, set up your camera 200 feet away from your focus object.



3. Focusing on the sign

- With the camera on your tripod, focus on your target with the manual focus ring on the lens.
- Press the C1 button three times, to magnify the object on the screen to make focusing easier.
- Use the C2 button as needed to toggle the peaking on and off as desired to assist in focusing.

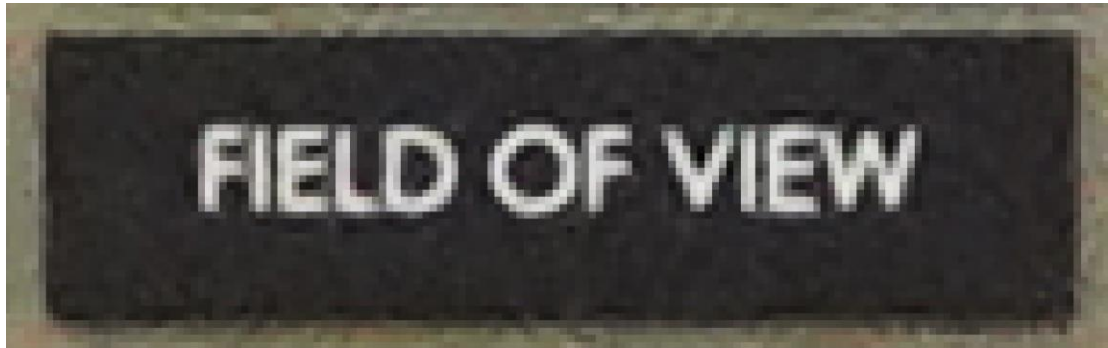
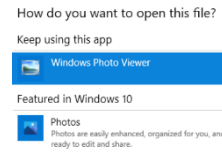
4. Secure the focus ring

- Tape down the lens manual focus ring to ensure that it will not move (we recommend using Gorilla Tape).
- Be sure to carefully apply the tape such that you do not move the manual focus ring in the process of taping it.
- Take a picture with the 10 sec timer enabled.

5. Inspect the image

- Remove the card from the camera and view the image on a computer. Zoom in as much as possible to make sure the sign/lettering you focused on looks crisp.

To better see the individual pixels, we recommend right clicking on the photo and opening with the “Windows Photo Viewer” application as opposed to the default “Photos” application.



This is in focus, the transition from the light to dark parts of the sign occur within 1-2 pixels



This is not in focus, the transition from the light to dark parts of the sign occur within several pixels.

PREPARE YOUR CAMERA FOR FLIGHT

- Make sure you return the trigger mode from “Self-timer: 10 Sec” to “Single Shooting”
- Set your shutter speed to what you need for you mission
- Return your ISO setting to Auto