

# PGD Tracker™ Kit Instructions

Congratulations and thank you for purchasing the PGD Tracker Kit. All of the components in your kit are precision devices and have been carefully inspected prior to shipping. To insure that using your PGD Tracker provides the benefits to your action photography it was designed for, please read through the following instructions completely.

Your kit includes the following:

- 1) The PGD Tracker pre-mounted to the PGD External Sight Mount (ESM-1)
- 2) One replacement CR2032 battery. (A battery is pre-installed in the Tracker)
- 3) Two hex wrenches, large (3mm) and small (1.5mm)
- 4) Cleaning cloth
- 5) Kit storage pouch

Starting in 2020 we are now including a “Quick Setup” method for those who are in a hurry to use the PGD Tracker, which starts just below. You are encouraged to read through this entire document, however, so you have a full understanding of how the Tracker works and alternative setups. The original instructions will start with “[Step 1: Turn on the Tracker](#)”.

## PGD Tracker Quick Setup

You will need your camera and telephoto lens, the Tracker and the included 3mm allen key, and a tripod.

Find a place where you have a line of sight to a distant small object like a sign, or any object that stands out that is approximately 6-12 inches in size. It could be a ‘no parking’ sign, part of a tree, a bird house, a mailbox, etc.. It should be a great distance away, (hundreds to thousands of feet depending on your lens), so that your cameras center focus point nearly covers the object.

Remove the rubber lens cover and slide the PGD Tracker into the flash socket of your camera until it stops. Firmly tighten the clamp screw knob. The Tracker should be securely in place with no perceived looseness.

Turn the PGD Tracker on by rotating the top dial to the green or red #5, (1 is least bright, 5 is the brightest).

Set the Tracker reticle to the “dot” style using the toggle switch moved fully left.

With the tripod set to a height that will allow you to easily see through the tracker, focus and center on the target object with your lens zoomed to maximum focal length. Lock the ball head.

With the camera center focal point on the object raise your eye to look over the top of the Tracker and through the center of the Tracker lens to locate the reticle and see where it is relative to your target object. Turn the up/down and right/left adjusters with the supplied 3mm ‘L’ wrench so that the reticle dot is on the same spot as your camera center focal point. Use one hand to gently hold the Tracker while you are making adjustments. Tracker set up is complete!

Set your camera focus system to continuous mode and a multiple focus point array. 9-25 points usually works best, but consult your camera manual as every camera has similar but different settings for action photography.

Don't forget to turn the PGD Tracker off when you are not using it or to store it in your gear bag. Turn the dial to the letter G or R.

Practice on stationary and slow moving targets, close and far, to get used to shooting with the PGD Tracker. Keep both eyes open! You can see more and it is easier to follow moving targets.

This completes the Quick Setup. Please continue reading the original more detailed instructions that follow. The descriptions of the parallel and fixed point setups are alternatives that may be useful to you. The quick set up above is a blend of these two approaches and is the method we personally use to set up our Trackers.

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## Step 1: Turn on the Tracker.

1. Turn the dial to either the **Green 5** or **Red 5**. 5 is the brightest setting for the reticle. You may choose any brightness or color based on personal preferences later.
2. At the back of the sight, just above the ESM-1 rail, is a toggle switch showing four reticle options. Again, the choice is a matter of personal preference, but for the calibration process described later in these instructions, we suggest using either the “cross hair: +” reticle, (the second choice from the left), or the “single dot” (on the far right).
3. Hold the Tracker out in front of you, approximately 4” from your nose, and look over the back of the sight and through the lens. You should not be able to see the battery cover. Gently move the sight up or down with slight changes to the attitude of the sight until you can see the reticle on the lens. Try the other reticle styles and the intensities 1-5 in both colors. We suggest doing this in a softly lit location. The lower brightness values may be hard to see in bright light. Contact us if any of the reticle styles or colors are not functioning.
4. Always turn the Tracker off when you are not using it. Rotate the Intensity dial to align with the **R** or **G** over the small white dot on the side of the tracker. These are the “off” positions. The battery can provide 60-80 hours of service.



## Step 2: Mount the ESM-1 with the Tracker on your camera hot shoe.

Remove the rubber lens cover. Back the ESM-1 clamp screw out a few turns before sliding the ESM – Tracker assembly into your camera hot shoe. It should not require more than very modest force, at most, for the ESM to slide fully forward into the hot shoe. It may slide easily. There are variations in hot shoe geometries across brands and models. While gently holding the ESM forward against the front of the hot shoe, turn the clamp screw until it is firmly seated. Use no tools! The clamp screw is tight enough when any perceived looseness of the Tracker in the hot shoe disappears, and the Tracker cannot slide out of the hot shoe due to its own weight if pointed upward.

## Step 3: Calibrate the PGD Tracker to your camera.

The PGD Tracker must be calibrated to your camera before use. Calibration is best done with your preferred telephoto lens and a sturdy tripod. This method describes a simplified “parallel offset” calibration and is based on the fact that on the typical DSLR, the Tracker is positioned above the lens center line by a little less than 5”, the same height as a 12 oz soda can. If you have a smaller or a mirrorless camera, the offset is less, and you need an object matching your offset or just use a ruler.

1. Turn your Tracker on and confirm that it is functioning.
2. Place a 12 oz can of soda about 50-100 feet away and at the approximate height of your supported camera. The distance is not critical, but you want to be able to see the can easily in your view finder. Either set your Auto Focus to “single point, center” or enable any view grid your camera may offer that indicates the center of your view frame. This can be done in “live view” if your camera has that feature. Use the 3X3 + Diagonal display if your camera offers it. You need to see the true center of the frame. Consult your camera manual.
3. Focus on the soda can and place the view finder center point on the **bottom** of the can, centered.
4. Use the small hex wrench to turn the vertical calibration lock screw, (see below), until it is just snug, then back off 1/16 of a turn. Now, using the large hex wrench in the screw labeled “Up”, adjust the reticle, up or down as required, until the reticle is on the **top** of the soda can.
5. Using the side adjust screw, labeled “R”, move the reticle until it is centered on the can directly above the center in live view.
6. Snug the vertical calibration lock screw when you are satisfied. Recheck the right-left adjustment. (Tightening the locking screw will nudge the reticle a small amount).
7. You are done!
8. (Remember to relax the Vertical calibration lock screw if you wish to change the vertical calibration)!



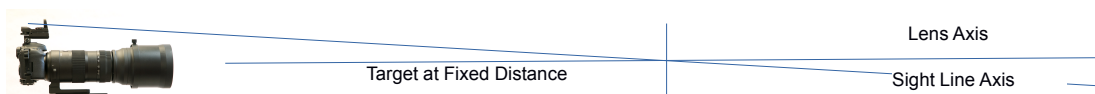
## Non DSLR Cameras and “Parallel vs Distance” calibration.

The Tracker mounted on your hot shoe is nominally 4 to 5” above the centerline of the camera lens, depending on your camera. Measure your own for reference. The nearest 1/8–1/4” is accurate enough. On the Canon 7D shown, the measurement is 4 7/8”.

**Parallel Method:** With parallel calibration, you must estimate the offset of the reticle relative to your subject both close and far. This becomes easy with a little practice. The reticle is adjusted so that it is always 4-5.5” above the center of your lens centerline, (measure and use your camera offset dimension). Your optical line of sight and the lens centerline are then parallel when the reticle is the same height above the target close and far, say 25' and 100'. Propping a ruler or tape measure and using that as a target will aid the adjustment process. Remember, the offset is less of an issue for targets that are quite far off but very important for close targets that might fill the frame.



**Distance Method:** The reticle is adjusted to be exactly on your target at a distance you choose. Center the frame at a specific distance, perhaps the distance that your subjects might most often be (e.g., 50' for small birds using a 400-600mm telephoto). With the distance calibration the reticle will appear *below* the true center of your frame at greater distance and *above* true center for a shorter distance. For long subject distances, (hundreds of feet), the offset compensation can be considerable.



Both methods will require some practice in the field to achieve consistent results. Use the approach that best fits your shooting mission. Try it both ways. Re-calibration is easy.

## Changing the Tracker battery

Removing the battery cover is easier with the rubber lens cover off, but try to avoid touching the glass. Place the Tracker on the edge of a flat surface with the ESM-1 hanging off the edge so the tracker sits flat. Remove the battery cover situated on the color – intensity dial behind the lens using a small coin. A nickel is perfect. Grip the dial with a thumb and finger with one hand and use the coin to loosen the cover, turning counter clockwise. It may feel snug as there is a sealing O Ring under the cover. After a quarter turn it will spin freely.

Place a fresh CR2032 battery into the battery cavity with the battery printing facing up. Center the battery cover over the battery. Place the tip of a forefinger on the cover center and press down against the springs. With your other hand use a thumb and forefinger to grip and rotate the edge of the cover until the threads engage. If the cover feels stuck and the dial itself turns, reverse the cover a quarter turn and retry. The procedure requires a little patience. Once the threads are engaged, continue to turn the cover, now using a coin, and gripping the dial until the cover is snug. Be gentle. The screw thread on the cover and body are very fine. Forcing the cap when the threads are not properly engaged will damage them.



### **WARNING!!!**

#### **Don't leave the PGD Tracker on your camera when you are not using it!**

Rough handling of the ESM-1 and Tracker or contact with other objects while mounted to your camera can affect the calibration or potentially damage your hot shoe, the Tracker, or both. The ESM-1 is designed for easy mounting with repeatable positioning thus maintaining calibration to your camera, and it is structurally strong. PhotoGearDesigns accepts no responsibility for damage to PGD Tracker, the ESM-1, or the camera to which it is mounted.

If you suspect the ESM-1 and Tracker may have been impacted due to a drop or other incident, carefully inspect the camera and Tracker. Recheck the calibration.

## Tips

- To reduce unnecessary stress on the camera hot shoe, remove the lens cover **before** mounting the Tracker. Remove the Tracker from the camera to put the lens cover back on.
- Turn off your sight when you are not using it! The batteries typically provide 60-80 hours of use. But if left on when stored, the battery may be drained the next time you want to use it. Always

keep spares in your Tracker pouch or gear bag. The CR2032 battery is readily available wherever batteries are sold. One spare is included in your kit.

- Pick an AF pattern on your camera that best fits your subject matter. We suggest a 6×6 or 12×12, or similar, centered matrix. Be aware of your background. A featureless sky is more forgiving than trees and other objects which might confuse the AF if the pattern is too large.
- The usual rules for action photography are... fast shutter speeds (1/1000–1/2500), an F-stop to provide DOF as desired, and auto ISO are typical configurations. Continuous AF is typically used. Consider enabling back button focus. Experiment and find the settings that give you the best results with your equipment.
- Confirm sight calibration at the start of each shoot. In the field, simply pick any small object using single-point AF, (or your live view), and confirm that the reticle is vertically aligned and has the proper offset. If you don't have a tripod with you, take a shot using the optical sight and confirm that the image is framed as you expected. Keep the hex L wrenches that come with your sight in your kit bag in case you need to tweak the calibration.
- Seagulls make excellent subjects for practicing visual tracking while controlling the shutter and AF.

## FAQs

### Can I use my ESM-1 and PGD Tracker on multiple cameras?

Yes, but the Tracker will need to be re-calibrated every time you change camera bodies. Small differences in the hot shoe geometries and the position of the hot shoe relative to the camera body translate to large errors of the reticle position relative to the lens axis. You may get lucky, but confirm proper calibration with a different camera before shooting. Recalibration is easy and can be done in the field (just in case your buddy wants to try it!). Keep the hex wrenches that come with your Tracker in your gear bag.

### Do I have to recalibrate for different lenses on the same camera body?

No. There may be *very* small reticle position errors for different lenses, but recalibration is typically not required.

### What are the pros and cons of calibrating the sight for “parallel” versus “distance”?

The “parallel” calibration only requires that you learn to place the reticle above the center of your subject composition by your offset amount, say 5” for the typical DSLR. With some practice, it becomes easy to estimate the offset for close or far subjects.

Calibrating for a fixed distance “on target” might be preferable in a situation where you are shooting from a blind or other fixed location with your subjects always at a fixed distance, say at a feeder. Then shooting with the reticle directly on your target, especially for small birds and a long lens, might require less mental calculation while shooting.

### Does it matter if I use a zoom telephoto versus a prime lens?

No. Fast prime lenses usually have the best AF performance, but zooms are more flexible for subjects close and far and are typically less expensive.

### Can I leave the ESM-1 and PGD Tracker on my camera?

Yes, BUT DON'T DO IT! The ESM-1 is designed to repeat its calibrated position and is easy to remove and mount. The ESM-1 can potentially exert more force on the hot shoe than it is designed to sustain if you drop the camera or lay it down so that the ESM-1 or Tracker touches other objects. Mount the Tracker when you are about to start shooting and remove it when the shoot is over. Put the protective rubber cover over the Tracker lens. Store it in the kit pouch to keep it clean and easy to find in your gear bag.

The hot shoe is making small grooves in my ESM-1 mount adapter. Is that a problem?

No. The metal edges of the hot shoe will initially make small grooves in the high-performance engineering plastic used in the ESM-1 design. This increases the contact area of the adapter to the hot shoe, and the rate of wear will stop. The thumb screw allows for the small changes in fit to maintain tightness while in use.

The ESM-1 and PGD Tracker are not warranted for accidental damage, and we accept no responsibility for camera damage of any kind. If you do not agree to this, return the PGD Tracker Kit, unused, and we will gladly refund the purchase price. Return shipping is the buyer's responsibility. Visit [www.photogeardesigns.com](http://www.photogeardesigns.com) for more warranty information.

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