

How I set up my iOptron GEM45 equatorial mount

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The following procedure is based on experience with the GEM45 as well as long familiarity with how equatorial mounts work. With minor changes, it applies to other iOptron mounts, especially the CEM40, but I have no direct experience with those.

Assembly

The locks should be OFF when the mount head is in its case for transport.

The locks should be ON when you are handling the mount head without the counterweight bar attached. Otherwise it's like wrestling an octopus, and further, the head can go upside down, disconnecting some internal cables.

Attach the head to the top of the tripod.

Attach the counterweight bar.

Turn the locks OFF. Attach the counterweight(s). Put them at the far end of the shaft; you will move them up closer to the mount head when you balance.

With the counterweight bar straight down, turn the locks ON and attach the telescope.

Balance the telescope, moving the counterweights up as appropriate, turning the locks OFF to check balance.

Return the mount to counterweight-straight-down position and make sure both locks are ON.

Polar alignment

Do a good polar alignment with the iPolar, as directed.

Hint: The cross and circle do not have to be continuously green. As long as they are at least 90% coinciding, you have an excellent polar alignment, within 1 arc-minute. The cross and circle are each 8 arc-minutes across.

Initialization

Supply power, attach the hand box, and turn the mount on.

Using GPS is optional. If you do not, then make sure the latitude and longitude are accurate to 1 degree and the time of day is accurate to 5 minutes. Extreme precision is not needed. Nor do you need to level the mount perfectly. Like all computerized equatorial mounts, this mount finds its position when you sync on a star; everything before that is only approximate.

Go to zero position: **Menu**, scroll *up* one step, **Zero Position**, **Search Zero Position**.

The mount will use its internal sensors to go to zero position. When it does, choose **Back** (do not calibrate zero position, merely stay where you are).

Star alignment is, believe it or not, optional! With this high-quality mount and an accurate polar alignment, you can go straight to the next step.

Synchronizing on a star is *not* optional; you must do it even if you've done star alignment, because until you do, the displayed RA and declination will be incorrect.

Choose **Menu, Select and Slew, Stars**, and pick a named star you can recognize. The telescope will slew to within a couple of degrees of it. It may be slightly farther off if all the tolerable errors that I mentioned are maximum. Don't worry.

Then choose **Menu, Sync to Target**, and follow the prompt to center that star and then press Enter.

That's all – it's initialized. To get slightly more accurate go-to in a different area of the sky later, you may choose to sync again, on a star nearer what you're observing.

Takedown

At the end of your session, choose **Menu**, (scroll up) **Zero Position, Go To Zero Position**.

Then power the mount off, reversing the steps you went through when setting it up.