Quick Start Guide

CEM40™ Center-Balanced GoTo Equatorial Mount
Models: #7400A (CEM40) , #7400ECA (CEM40EC)

PACKAGE CONTENTS[1]

- Telescope mount – with iPolar™ electronic Polar Scope
- Hand controller (HC) – Go2Nova® 8407+
- Counterweight – 10 lbs X1 (4.5 kg)
- Stainless steel counterweight shaft
- GPS module
- RJ11 coiled cable X2
- RS232-RJ9 serial cable
- USB cable
- AC adapter – 100-240V (DC output 12V/5A)
- Alignment peg (located in mount package)
- 1.5" tripod and accessory tray (tray located in mount package)
- Hard case (for 7400ECA, optional for 7400A)
- Quick Start Guide (this document)

ONLINE RESOURCES (at **www.iOptron.com**, under "**Support**")

- User's Manual
- Hand controller and mount firmware upgrades (check online for the latest version)
- ASCOM and Commander for computer control

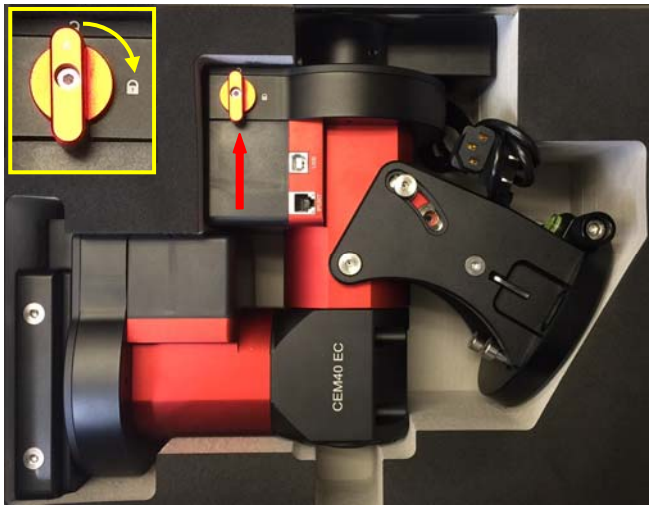
[1] The design, contents and packaging may change from time to time without notice.

iOptron Corp. | 6E Gill Street | Woburn, MA 01801 USA | (781) 569-0200 | www.iOptron.com

STOP!!! **Read the Instruction BEFORE setting up and using the mount! Worm/gear system damage due to improperly use will not be covered by warranty.**

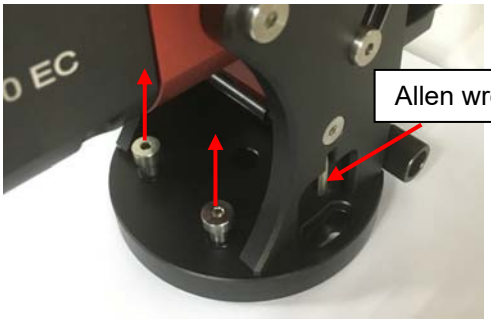
WARNING: Never disengage the Gear Switches without holding the mount firmly! Personal injury and/or equipment damage may happen.

1. **Remove the mount from the package:** The mount is shipped with R.A. Gear Switch unlocked to protect the worm/gear system. Turn the Gear Switch 90° to lock the R.A. gear system.



2. **Tripod Set Up**: The tripod top is 120 mm diameter with two M6 threaded holes 103 mm apart for locking the mount. Two other M6 threaded holes are for Alignment Peg (the one at north (south) leg is for normal latitude use, while the other between two legs for low latitude). Thread the Alignment Peg onto the tripod head. Insert the Accessory Tray to the center rod and secure the Tray and tighten the tripod with the Locking Knob.

Attach the Mount: Back out both Azimuth Adjustment Knobs to allow enough clearance inside the chamber for alignment peg. Position the mount on the tripod head with the Alignment Peg in between the 2 Azimuth Adjustment Knobs. Remove two Azimuth Locking Screws with washers from the mount base. Secure the mount head by tightening Azimuth Locking Screws. An Allen wrench is included for your convenience.



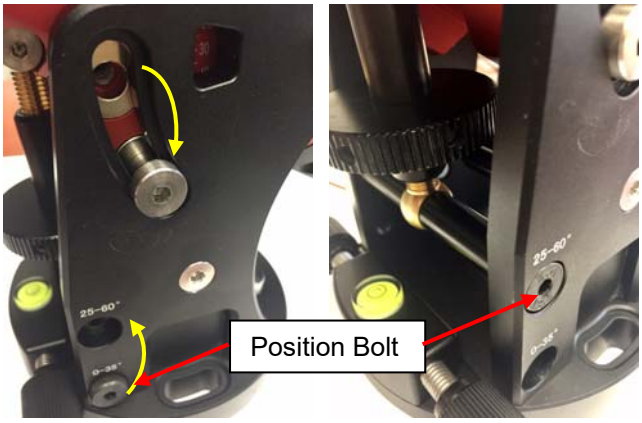
Level the mount by adjusting individual legs. You may use the build-in Bubble Level Indicator or an external level to check leveling.

3. **Adjust Latitude:** Slightly release 4X Latitude Locking Screws. Turn the Latitude Adjustment Knob to set your current latitude, which is displayed in Latitude Mark Window. Insert the Allen wrench into the Latitude Adjustment Knob if more turning force is needed. Always set the latitude without load.

The mount can be set at 0~35° (low latitude) or 25° ~ 60° (high latitude). To change the latitude setting from low to high, Latitude Position Bolt should be moved from 0~35° to 25~60° position, so as the Latitude Locking screws.

Slightly release Latitude Locking Screws and adjust the mount to 30 degree to show high latitude position holes.

Remove the front Latitude Locking Screws and washers (one on each side) and thread them into high latitude position holes without tightening. Unthread and remove the Latitude Position Bolt.



Move the Position Bolt to upper threaded holes for high latitude (25°~60°). Adjust the Latitude Adjustment Knob while hold the brass eyebolt until it is aligned to the Position Bolt. Insert and secure the Latitude Position Bolt.

4. **Install the Counterweight (CW) Shaft:** Remove the CW shaft from the package and thread into the CW shaft mounting house.

   For low latitude (<10°), a special CW mounting house is needed.

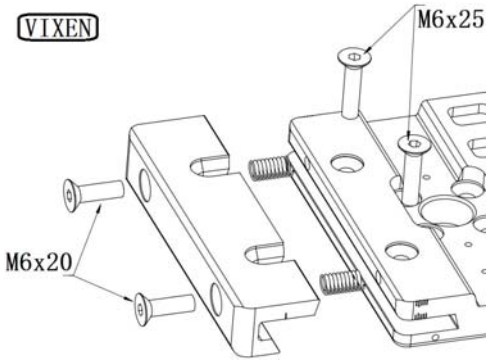
5. **Install Counterweight(s)**: Before CW is installed, make sure the mount is at zero position, i.e., CW shaft points to the ground. **Disengage the R.A. Gear Switch to set the R.A. axis free before loading the CW.** Remove the CW Safety Cap at the end of CW Shaft. Guide the CW over the shaft with large opening side facing down. Tighten the CW Locking Screw to hold the CW in place. Place the Safety Cap back onto the shaft. Move the CW to the bottom of the CW shaft and tighten the CW locking Screw.

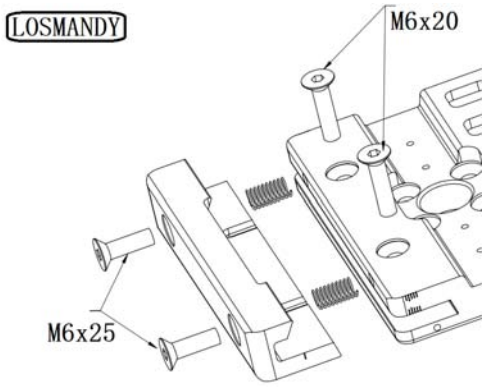
You may need more CW for heavier payload, or smaller size CW for lighter scope.

6. **Install Telescope**: CEM40 is equipped with a 5" iOptron Universal Saddle. It can be set to receive Vixen or Losmandy-D plate by flipping both locking sides. The center of the dovetail saddle can be adjusted to ensure that the scope is at the center of the dovetail saddle.

   The following pictures show how to change the dovetail saddle from Vixen to Losmandy.

Please Note that two sets of screws have different lengths.





7. **Balancing the Payload:** After attaching the scope and accessories, the mount head assembly must be balanced in both DEC and RA axes to ensure minimum stresses on the mount driving mechanism.

   CAUTION: The telescope may swing freely when the R.A. or DEC Gear Switch is disengaged. Always hold on to the mount and/or telescope assembly before releasing the Gear Switches to prevent it from swinging, which can cause personal injury and/or equipment damage.

   Set the mount at Zero Position. Disengage both RA and DEC gear switches and move the mount to horizontal position to check balance. Return to Zero Position for balance adjustment. Balance the DEC axis by moving the scope with accessories back and forth in the mount saddle or within the scope mounting rings. Balance the assembly in R.A. axis by moving CW along its shaft. Repeat the process until both DEC and RA axes are balanced.

   CAUTION: The balancing process MUST be done with Gear Switch at the total disengage position! Otherwise it might damage the worm system.

   Return the mount to Zero Position after balancing and engage gear switches.

8. **Connecting Cables:** Plug in a 12V DC power supply to the DC12V POWER socket. Connect the Go2Nova® 8407 Hand Controller to the HBX port on the mount side panel.

   Plug GPS module into the iPORT with coiled cable. When power on, GPS ON sign should be displayed at the upper right corner of the hand controller.

   You may disconnect the GPS module after it picked up satellites signal and the display changed to GPS OK. (It takes about 1 to 2 minutes in normal condition).

9. **Polar Alignment:** CEM40 & CEM40EC are equipped with an iPolar™ electronic polar scope. To perform polar alignment, please refer to CEM40 full

instruction manual, or iPolar Operation manual from iOptron website, or a brief:

- Download and install iPolar Software (first time use)
- Connect a USB cable between the iPolar port on the mount and a computer USB port
- Calibrate the iPolar Rotation Center (first time use)
- Click Connect and start polar alignment by following on screen instructions

For the mount without polar scope, please refer to full manual for ***Bright Star Alignment***, or use a software assistant alignment.

For the mount with an AccuAlign™ optical polar scope, please refer to full manual for ***Quick Polar Alignment.***

10. **Manual Operation:** The mount can now be used to observe astronomical objects with the HC. Use arrow keys (►, ◄, ▼, and ▲) to point the telescope to desired objects. Use the number keys to change the slewing speed. Press the **STOP/0** button to start or stop tracking.

11. **Set Controller:** Press the **MENU** button; then "***Settings***" => "**Set Time and Site**".

Before GPS pickup the signal (GPS OK), check for **Daylight Saving Time** using arrow key to toggle between "**Y**" and "**N**". Enter the time zone offset to the UTC; for examples:

- Boston is "UTC -300 minutes"
- Los Angeles is "UTC -480 minutes"
- Rome is "UTC +060 minutes"
- Sydney is "UTC +600 minutes"

Waiting for the mount to pick up the GPS (you'll hear beep). If the GPS OKed during setup, just power cycle the mount. Double check the HC display and it should show correct local time.

[**TIPS**: All time zones in N. America are "UTC -XXX minutes". Latitude and longitude coordinates can be obtained from GPS-equipped devices (navigator, phone), or from internet and entered manually, in case GPS can't connect to satellites or GPS malfunctioning. "W/E" = western/eastern hemisphere; "N/S" = northern/southern hemisphere. Use arrow and number keys to enter location information and current time.]

12. **Set Zero Position:** The **Set Zero Position** command registers the current position as zero position. So before register, the mount should be physically set at Zero Position either manually or slewed by hand controller, *i.e.* telescope on top of the mount and pointing to North Pole with CW shaft pointing to the ground. To register, press **MENU** => "***Zero Position***" => "***Set Zero Position***". Press **ENTER** to confirm. One can also using **MENU** => "***Zero Position***" => "***Search Zero Position***" to set the zero Position.

13. **One Star Alignment:** Perform ***One Star Align*** to correct the Zero Position discrepancy and improve GOTO accuracy. Refer to the full User's Manual for more details of improving GOTO accuracy.

14. **Go to an Object:** The mount is now ready for GOTO and tracking targets. Press **MENU**, select and ENTER "***Select and Slew***". Select a category (for example, "***Solar System***"), then select an object of interest (for example, "**Moon**"). Press **ENTER** and the telescope will slew to the object and automatically start tracking.

15. **Sync to Target:** If the object is not in the center of the eyepiece, use this function to center and synchronize the object to improve local GOTO accuracy. Press **MENU** and select and ENTER "***Sync to Target***". Follow the on screen instruction to perform the sync.

    [**TIP**: After slewing to an object, a list of nearby bright object(s) can be displayed by pressing "**?**" button.]

16. **Put the mount back into the package/carrying case:** It is recommended to return the mount to Zero Position at the end of the observing session. Lay the mount into the carrying case. Disengage the gear system for transportation.

Please contact support@ioptron.com for technical support.

IOPTRON TWO YEAR TELESCOPE, MOUNT, AND CONTROLLER WARRANTY

A. iOptron warrants your telescope, mount, or controller to be free from defects in materials and workmanship for two years. iOptron will repair or replace such product or part which, upon inspection by iOptron, is found to be defective in materials or workmanship. As a condition to the obligation of iOptron to repair or replace such product, the product must be returned to iOptron together with proof-of-purchase satisfactory to iOptron.

B. The Proper Return Merchant Authorization Number must be obtained from iOptron in advance of return. Contact iOptron at 1.781.569.0200 or support@ioptron.com to receive the RMA number to be displayed on the outside of your shipping container.
All returns must be accompanied by a written statement stating the name, address, and daytime telephone number of the owner, together with a brief description of any claimed defects. Parts or product for which replacement is made shall become the property of iOptron.

The customer shall be responsible for all costs, such as transportation, insurance and fees, both to and from the factory of iOptron, and shall be required to prepay such costs.

iOptron shall use reasonable efforts to repair or replace any telescope, mount, or controller covered by this warranty within thirty days of receipt. In the event repair or replacement shall require more than thirty days, iOptron shall notify the customer accordingly. iOptron reserves the right to replace any product which has been discontinued from its product line with a new product of comparable value and function.

This warranty shall be void and of no force of effect in the event a covered product has been modified in design or function, or subjected to abuse, misuse, mishandling or unauthorized repair. Further, product malfunction or deterioration due to normal wear is not covered by this warranty.

IOPTRON DISCLAIMS ANY WARRANTIES, EXPRESS OR IMPLIED, WHETHER OF MERCHANTABILITY OF FITNESS FOR A PARTICULAR USE, EXCEPT AS EXPRESSLY SET FORTH HERE. THE SOLE OBLIGATION OF IOPTRON UNDER THIS LIMITED WARRANTY SHALL BE TO REPAIR OR REPLACE THE COVERED PRODUCT, IN ACCORDANCE WITH THE TERMS SET FORTH HERE. IOPTRON EXPRESSLY DISCLAIMS ANY LOST PROFITS, GENERAL, SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES WHICH MAY RESULT FROM BREACH OF ANY WARRANTY, OR ARISING OUT OF THE USE OR INABILITY TO USE ANY IOPTRON PRODUCT. ANY WARRANTIES WHICH ARE IMPLIED AND WHICH CANNOT BE DISCLAIMED SHALL BE LIMITED IN DURATION TO A TERM OF TWO YEARS FROM THE DATE OF ORIGINAL RETAIL PURCHASE.

Some states do not allow the exclusion or limitation of incidental or consequential damages or limitation on how long an implied warranty lasts, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

iOptron reserves the right to modify or discontinue, without prior notice to you, any model or style telescope.

If warranty problems arise, or if you need assistance in using your telescope, mount, or controller contact:

iOptron Corporation
Customer Service Department
6F Gill Street
Woburn, MA 01801
www.ioptron.com
support@ioptron.com
Tel. (781)569-0200
Fax. (781)935-2860
Monday-Friday 9AM-5PM EST

NOTE: This warranty is valid to U.S.A. and Canadian customers who have purchased this product from an authorized iOptron dealer in the U.S.A. or Canada or directly from iOptron. Warranty outside the U.S.A. and Canada is valid only to customers who purchased from an iOptron Distributor or Authorized iOptron Dealer in the specific country. Please contact them for any warranty.