Quick Start Guide

HAE Strain Wave Gear AZ/EQ GoTo Mount
Models: HAE29, HAE29EC, HAE43 and HAE43EC Series

PACKAGE CONTENTS[1]

- Telescope mount HAE with or without iPolar[TM] electronics polar scope
- Hand controller (HC) – Go2Nova® 8409 with built-in WiFi
- 6P6C hand controller cable
- USB 2.0 cable
- AC adapter – 100-240V, 12V 5A DC output (for indoor use only)
- Carrying case
- Optional carbon fiber tripod (#8061, as shown)
- Optional external iGuider for autoguiding (#3360)
- Optional counterweight shaft and counterweight (#3006-10)

ONLINE RESOURCES (**www.iOptron.com**)

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

[1] Contents and design may change from time to time without notice.

HAE is operated under unbalanced condition and could be tipped off if tripod is not secured.

1. **Remove mount head from package**.

2. **Set up tripod**: Setup and level the tripod. Adjust the tripod height. Tighten tripod locking knob to secure the tripod. Thread the **Alignment Peg** onto the tripod head, on top of a tripod leg or between two legs depending on the latitude. Shown below is a carbon fiber tripod which can be sued for multiple mounts.

For HAE43

For HAE29

Center Post
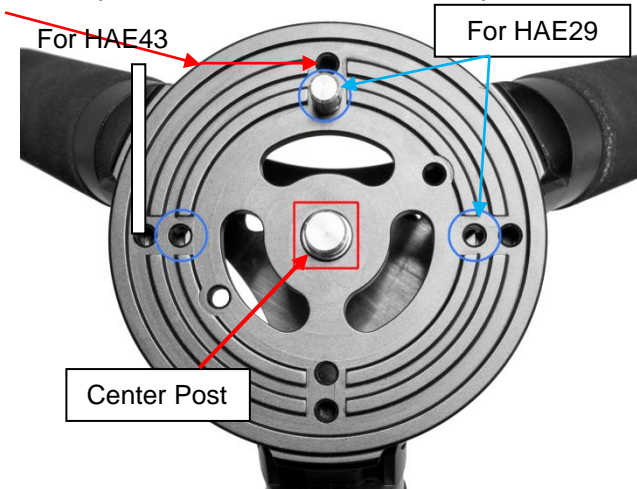
3. **Attach mount head:** Retract the 2x Azimuth (Azi) Adjustment Screws from both sides to leave ample space for the alignment peg to be fitted in between the 2x Azi Adjustment Screws.
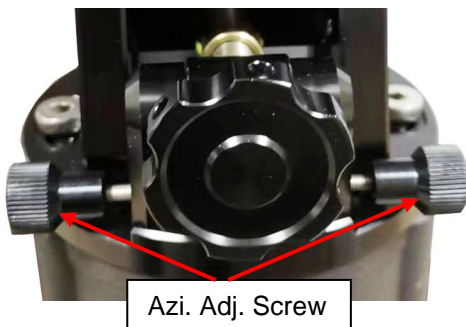

Azi. Adj. Screw

Secure the mount head by tightening the Azi Locking Screws into the M6 holes on the tripod. There is an Allen wrench stored on the mount base for tightening the screws.


Azi. Locking Screw

Allen wrench

Level the mount by adjusting the tripod legs. Use the build-in Bubble Level Indicator or an external leveler for this purpose.

4. **Adjust latitude:**   Without any payload, remove Latitude Range Bolt. Loosen the Latitude Locking Knob.

Lat. Lock. Knob

Lat. Adj. Knob
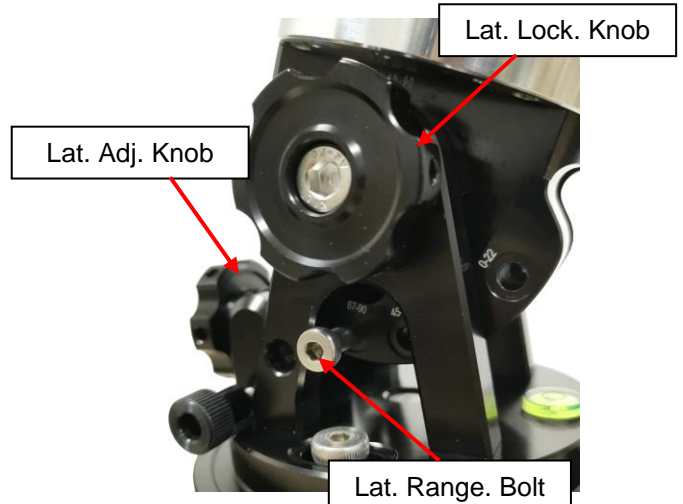
Lat. Range. Bolt

Use the Latitude Adjustment Knob to move the mount to a proper Latitude Range and thread in the Latitude Range Bolt. Fine adjust the latitude to corrected latitude. Here the mount is set at 40°. Tighten the Latitude Locking Knob.
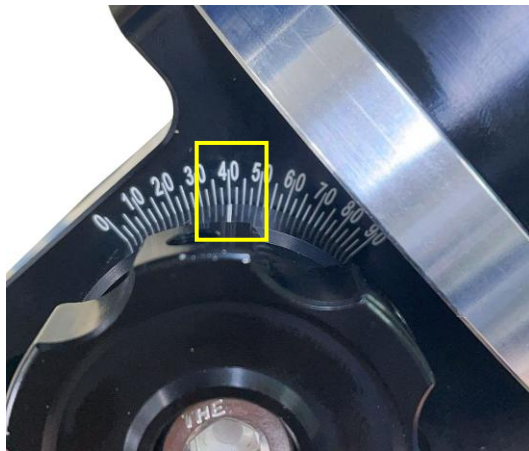
There are holes on Latitude Adjustment Knob and Locking Knob for insert the Allen wrench for increased adjustment torque, if needed.

There are four latitude ranges: 0°~22°, 22°~45°, 45°~67° and 67°~90°. To use the mount near equator, set it to 0°~22°. To use the mount at AA mode, use the range 67°~90°.


5. **Install telescope**: HAE29 accepts a Vixen or a Losmandy-D dovetail mounting bar. The default is Vixen-type one. Release the dovetail Saddle Locking Lever and slide the telescope dovetail plate into the saddle. Make sure that the arrow sign on the saddle is pointing forward. Tighten the Saddle Locking Screw.

To convert dovetail saddle from a Vixen-type to a Losmandy-type.

(1) Remove two socket screws (red circled), flip and move the saddle fixed block outward.

(2) Remove locking knobs and flip the sliding blocks (blue squares).
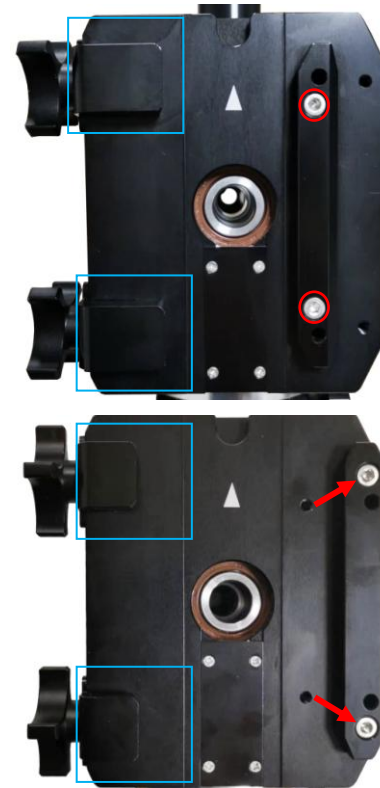
6. **Connect cables:** Connect the Go2Nova® 8409 Hand Controller to the **HBX** port on the mount back. Plug in a 12V DC power supply to the **DC12V IN** socket.

7. **Set Zero Position:** The **Set Zero Position** command registers the current position as zero position. So before registering, the mount should be physically set at Zero Position either manually or slewed by hand controller. The Zero Position is defined as the telescope being on top of the mount head and pointing to North Pole, with CW shaft mounting hole pointing to the ground. To register, turn the mount power on and slew the mount to Zero Position using hand controller. Then press **MENU** => **Zero Position** => **Set Zero Position**. Press **ENTER** to confirm. One

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can also use **MENU** => **Zero Position** => **Search Zero Position** to set the zero Position.

8. **Set controller:** Press the **MENU** button; then "**Settings**" => "**Set Time & Site**".

```
2022-05-05 12:01:36
UTC -300 Minute(s)
W071d08m50s      DST:  Y
N42d30m32s       Northern
```

Enter the current date. 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"

Enter longitude and latitude coordinates according your GPS information. Toggle the Daylight Saving Time (DST) between N(No) and Y(Yes) using arrow key. Move the cursor to the end of screen to select the Northern or Southern Hemisphere.

[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, if you are entering them manually. "W/E" = western/eastern hemisphere; "N/S" = northern/southern hemisphere; and "d" = degree; "m" = minute; and "s" = second. Use arrow and number keys to enter location information.]

When iOptron Commander Lite is in action (WiFi version ASCOM), one may easily import the GPS info from a smartphone to the mount/hand controller. There is no worry about lacking internet, WiFi, and cell phone signals in rural areas; Commander Lite can always get GPS info from a smartphone to the HAE mount/hand controller, no dead corner.
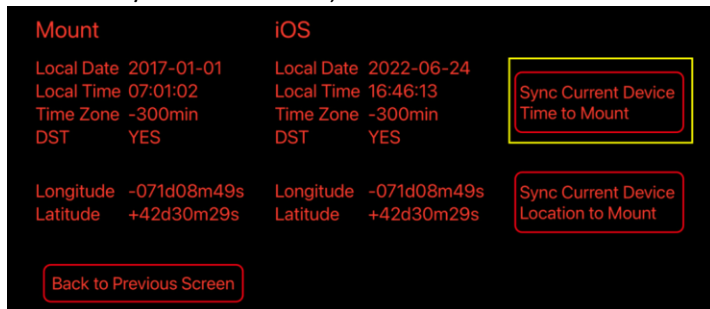
9. **Polar alignment:** For a HAE mount without polar scope or the pole star is not in sight, you may use two bright stars for coarse polar alignment.

(1) Level the mount and set it to the Zero Position. Align the telescope to the R.A. axis of the mount. An eyepiece with an illuminated crosshair is highly recommended.

(2) Use the Hand Controller (**MENU => "Alignment" => "Polar Iterate Align"**) to display the azimuth and altitude position of several bright stars near the meridian. Select one that is visible at a high altitude as Alignment Star **A**. Follow the HC instruction to move Alignment Star **A** to the center of the eyepiece using a combination of the **Latitude Adjustment Knob** and the "◄" or "►" buttons. Press ENTER to confirm when the star is centered. Next, select a bright star that is close to the horizon as Alignment Star **B**. Center it using the **Azimuth Adjustment Knob** and the "◄" or "►" button. Press ENTER to confirm the settings.

(3) The telescope will now slew back to Alignment Star **A**. Repeat the steps above. The iteration can be stopped when it is determined that the alignment error has been minimized. Press the BACK button to exit the alignment procedure.

HAE29 may use an external iPolar™ electronic polar scope. Just place the iPolar over the bubble level on top of the mount and secure the thumb screws.

Refer to iPolar Operation Manual from iOptron's website to perform the polar alignment, or steps briefly outlined below:
- Download and install iPolar Software (first time use);
- Connect a miniUSB cable between the iPolar USB port and a computer USB port;
- Click Connect and start polar alignment by following on screen instructions.

10. **Install counterweight bar and CW:** The mount is designed to operate without a counterweight (CW). If you want to use an optional CW, the CW shaft mounting hole is 3/8"-16 threaded. Thread in a CW shaft and install a 10 lbs CW.

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

12. **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 (e.g., **Solar System**), then select an object of interest (e.g., **Moon**). Press **ENTER** and the telescope will slew to the object and automatically start tracking.

13. **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 the **?** button.]

14. **Install hand controller battery:** The hand controller uses a CR2032 button battery to keep the Real Time Clock running. The HC is shipped without battery installed due to shipping restrictions. Open the HC back cover. With battery + sign facing up, slide the battery under two small metal hooks on the positive side first. Then push the battery down to make a good contact.
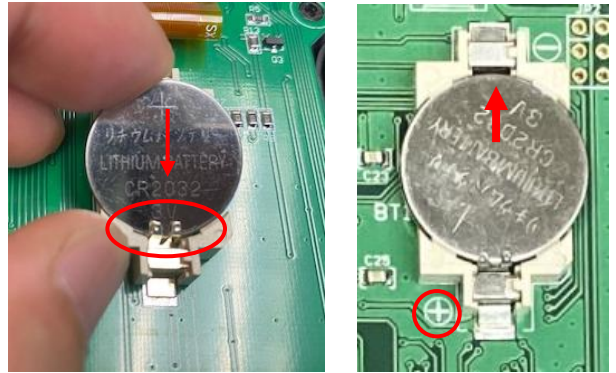
15. **Customer cabling:** A HAE mount is customer cabling ready. There is a through hole from center of dovetail saddle to back of RA axis. Cusomers can thread their own cables if needed.

16. **Mount control via a computer/SmartPhone/Tablet:** One can control the HAE mount via USB on 8409 hand controller or a built-in Wi-Fi. It supports ASCOM for Windows, third party INDI driver for MacOS or Raspberry PI, iOptron Commander Lite or SkySafari Pro for iOS/Android. Some software also has iOptron mount driver embedded.

17. **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. If the mount is set at 0~22° or 67~90°, you may need to adjust the latitude a little bit to be fit into the carrying case.

    Use support@ioptron.com for technical supports.

    Rev. 1.0 November 2022

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. Call iOptron at 1.781.569.0200 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 of transportation and insurance, 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.

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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:

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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.