

## Quick Start Guide

### For SmartEQ™ Pro+ (#3200) Portable German Equatorial GOTO Mount



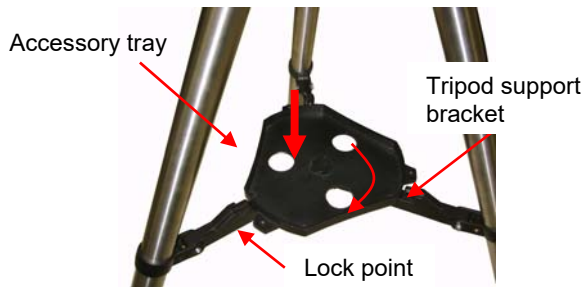
#### PACKAGE CONTENTS

- Telescope Mount
- Go2Nova® 8408 Hand Controller
- 1.25-inch tripod with accessory tray
- One 1 kg (2.2 lbs) counterweight
- One hand controller cable
- AccuAlign™ polar scope

#### ONLINE CONTENTS *(click under "Support" menu)* [www.iOptron.com](http://www.iOptron.com)

- Manuals *(you will need to refer to the full manual for details on set-up and operation, NO printed one will be supplied.)*
- Tips for set up
- Firmware upgrade and computer control (check online for latest version)
- Accessories (such as #8434 StarFi WIFI adapter, #8412 RS232-RJ9 cable, #8417 AC adapter)
- Reviews and feedback from other customers

- 1. Setup tripod:** Expand the tripod legs. Put the Accessory Tray onto the Tripod Support Bracket. Slightly push down Accessory Tray while turn it, until the tray is locked into the Tripod Support Bracket. (Figure 1). Adjust the tripod height by unlocking and re-locking the tripod leg screws (not shown) to a desired height. Position the tripod so that the Alignment Peg faces north, if you are in Northern Hemisphere (Figure 2).



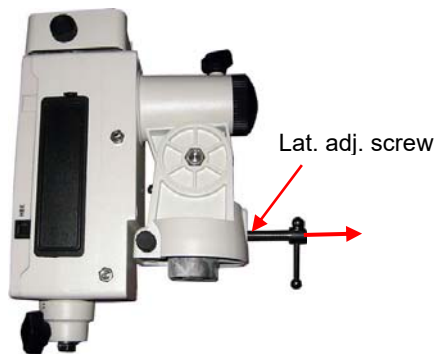
**Figure 1**



**Figure 2**

*The Alignment Peg may be moved to the opposite position if used at latitude lower than 20° to avoid counterweights hit the tripod leg.*

- 2. Attach the Mount:** Remove the Latitude Adjustment Screw from its Storage Position (the bottom threaded hole) by unscrewing it all the way out (Figure 3).



**Figure 3**

Retract the Azimuth Adjustment Knobs to allow enough clearance for the Alignment Peg seating in

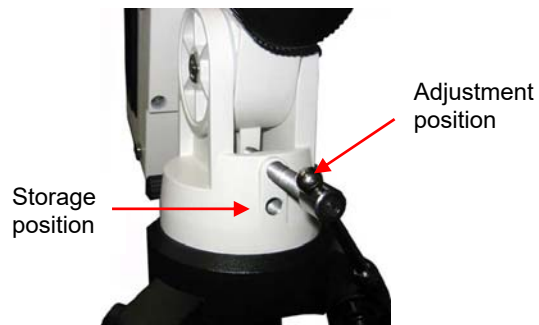
the house. Tighten the Azimuth Lock to secure the mount (Figure 4).



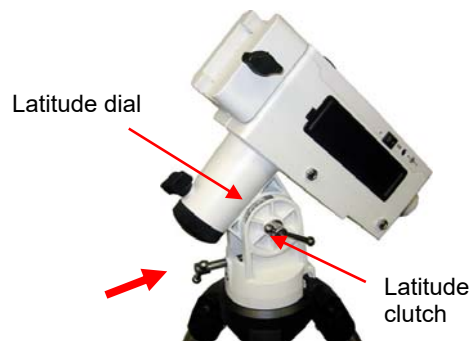
**Figure 4**

- 3. Adjust Latitude:** This step requires you to know the latitude of your current location. It can be easily found on the Internet, with your GPS navigator or a GPS capable cell phone. You will have to change this latitude setting every time you significantly change your night sky viewing location. This setting directly affects the mount's tracking and GOTO accuracy.

Thread in the Latitude Adjustment Screw into the Adjustment Position (the upper threaded hole), a threaded hole above the Storage Position (Figure 5). Loosen the Latitude Clutch Screw and tune the Latitude Adjustment Screw to raise the mount altitude (latitude) to your current latitude as indicated on the Latitude Dial, as shown in Figure 6.



**Figure 5**



**Figure 6**

4. **Install Counterweight (CW):** The mount comes with one 1 kg (2.2 lbs) counterweight. However, because of its unique design, no CW is needed if the payload is less than 4 lbs. **The mount and installed batteries will provide balancing weight needed.** If a payload is greater than 8.8 lbs (4 kg, this value may vary depends on the scope diameter), additional CW is needed. The Counterweight Shaft is stored inside the mount head. If a CW is needed, release the CW Shaft Locking Screw to pull out the shaft (Figure 7). Mount a CW onto the shaft and tighten the CW Locking Screw to hold the CW in place. Tighten the CW Safety Screw (Figure 8).

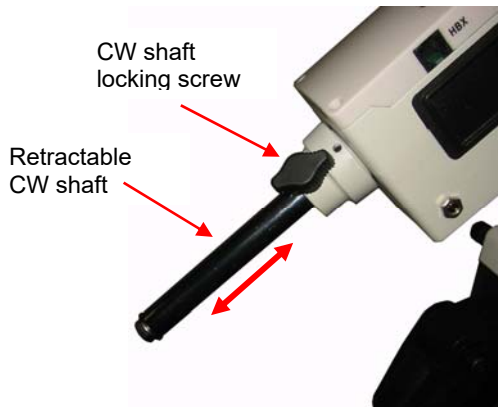


Figure 7

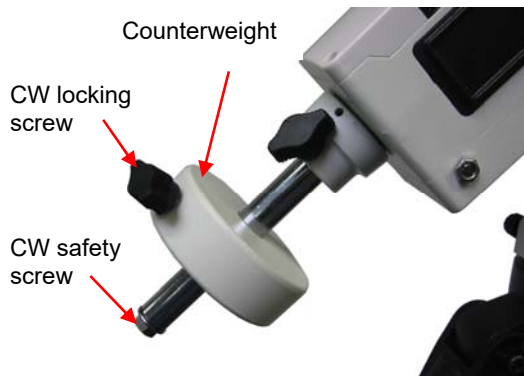


Figure 8

5. **Attach and Balance an OTA:** After attaching an OTA and accessories to the mount, balance the mount in both R.A. and DEC to ensure minimum stress on the mount.

**CAUTION:** The telescope may swing when the R.A. or DEC clutch is released. Always hold on to the OTA before you release the clutch to prevent it from swinging. It can cause personal injury or damage to the equipment.

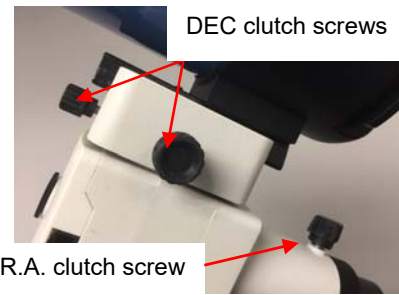


Figure 9

**Balance the mount in R.A. axis:** Release the R.A. Clutch and rotate the R.A. axis to place the DEC axis in the horizontal position. The OTA can be on either side. If the DEC axis stays in the horizontal position, it means the R.A. axis is balanced. Otherwise, you may adjust the length of CW shaft, or install and adjust CW position to balance the mount in R.A. axis. Remember to install the CW Safety Lock and tighten the CW Locking Screw, if a CW is installed.

**Balance the mount in DEC. axis:** While the mount is at horizontal position, release the DEC Clutch screws. If the OTA does not rotate along the DEC axis, it is OK. Otherwise move the scope back or forth to balance the OTA. Tighten the DEC Clutch again.

6. **Install Batteries and Connect Cables:** There are two battery compartments that each can hold 4 AA batteries (Figure 10). Lift the battery cover. Carefully pull out the battery holder from the compartment. Be sure not to accidentally disconnect the wires. Insert 4 AA batteries into each holder. Replace the holder back into the battery compartment and replace the lid.

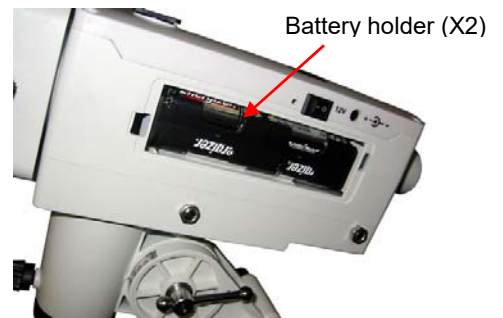


Figure 10

Plug hand controller into the HBX port on the mount (Figure 11). Turn on power and use four Arrow keys (▲▼◀▶) to rotate the mount Up, Down, Left, and Right. Use the NUMBER key to

change the slew rate from the slowest (1 for 1X) to the fastest (9 for MAX).



Figure 11

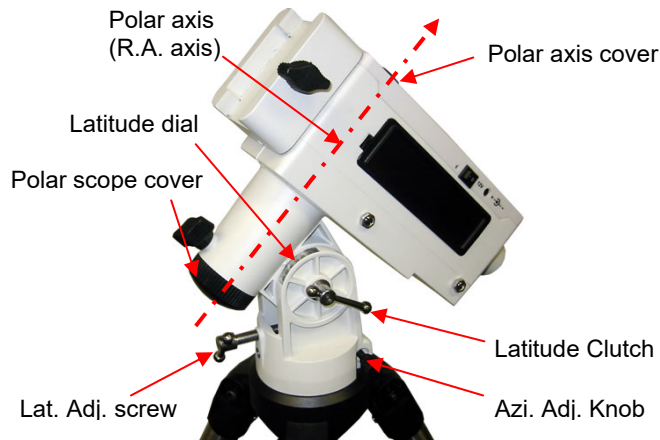


Figure 12

7. **Setup Up Controller:** Press the **MENU** button; then “Settings” => “Set Time & Site”.

```
2013-04-01 12:01:36
UTC -300 Minute(s)
W071d08m50s      DST: Y
N42d30m32s      Northern
```

Enter the current date or waiting for the GPS connected to the satellites. 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”

Toggle the Daylight Saving Time (DST) between N(No) and Y(Yes) using arrow key.

[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.]

8. **Polar Alignment:** Remove both Polar Scope and Polar axis covers. Look through the polar scope to locate *Polaris* (or *Sigma Octantis* at southern hemisphere). Slightly loosen the Azimuth Lock (Refer to **Figure 4**). Use the two Azimuth Adjustment Knobs to center the pole star in the azimuth direction, followed by tightening the Azimuth Lock. Slightly loosen Latitude Clutch (T-bolt), use the Latitude Adjustment Screw to adjust the latitude. Tighten the locking T-bolt afterwards.

**Quick Polar Alignment**

Fast and accurate polar alignment can be performed with iOptron’s AccuAlign™ Polar Scope.

- (1) Turn the mount power on. Use the Hand Controller (“MENU” => “Settings” => “Set Eyepiece Light”) to set illumination intensity.
- (2) Use the Hand Controller (MENU => “Align” => “Pole Star Position”) to display the Polaris Position on the LCD screen, as indicated in the left side of the figure below. For example, June 22, 2014, 20:19:42 in Boston, US (alt N42°30’32” and long W71°08’50”), 300 min behind UT, the Polaris Position is 0h45.8m and 40.4m (Figure 13).

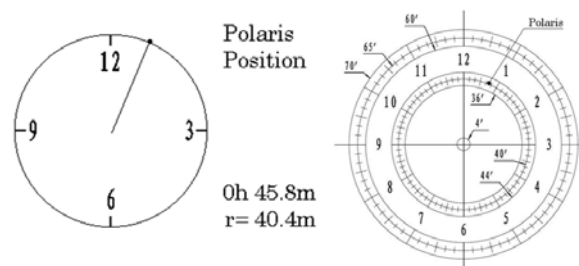


Figure 13

- (3) Use the Azimuth and Latitude Adj. Knobs to adjust the mount in both directions and put the Polaris in the location on the Polar Scope Dial (same as indicated on the HC LCD), as shown in the right graph of the above figures.

**BrightStar Polar Alignment**

When the pole star is not in sight, refer to online Instruction Manual for *BrightStar Polar Alignment*.

9. **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.

- 10. Zero Position and One Star Alignment:** After polar alignment and balancing OTA, return the mount to Zero Position before performing **Star Alignment**. The Zero Position is the position with the CW shaft pointing toward the ground, OTA at the highest position with its axis parallel to the polar axis and the OTA pointing to the Celestial Pole.

Loosen the DEC and R.A. Clutches to adjust the mount to the Zero Position by align three marks located on DEC unit, R.A. unit and mount, respectively. Tighten the screws after adjustment.



**Figure 14**

The default mount power on position is **NOT** necessary the zero position for SmartEQ Pro+, especially it is the first time to use the mount or just performed firmware upgrade. Set the Zero Position by press **MENU** => **“Zero Position”** => **“Set Zero**

**Position”**. You should make sure the mount is at ZERO position by press **MENU** => **“Zero Position”** => **“Goto Zero Position”** when the mount is powered on.

Perform a **One Star Align** to correct the Zero Position discrepancy. To further improve the GOTO accuracy, refer to the full User’s Manual for more details.

- 11. 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.
- 12. 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”**. Use arrow keys center the object in eyepiece. Press **ENTER** again to complete this function.

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

Use [support@ioptron.com](mailto:support@ioptron.com) for technical supports.

## IOPTRON ONE YEAR TELESCOPE, MOUNT, AND CONTROLLER WARRANTY

A. iOptron warrants your telescope, mount, or controller to be free from defects in materials and workmanship for one year. 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 (RMA) Number must be obtained from iOptron in advance of return. Send a e-mail to support@ioptron.com or 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.

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 ONE YEAR 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  
6E Gill Street  
Woburn, MA 01801  
[www.ioptron.com](http://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.