Quick Start Guide

The SmartEQ™ Portable German Equatorial GOTO Mount #3100

PACKAGE CONTENTS

- Telescope Mount
- Go2Nova™ #8408 Hand Controller
- 1.25-inch Tripod with accessory tray
- One 2 lbs (0.9 kg) counterweight
- One hand controller cable
-

ONLINE CONTENTS *(click under "Support" menu)* **www.iOptron.com**

- Manuals *(you will need to refer to the full manual for details on set-up and operation).*
- Tips for set up
- Hand controller firmware upgrades (check online for latest version)
- Reviews and feedback from other customers

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Quick Setup

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)**.

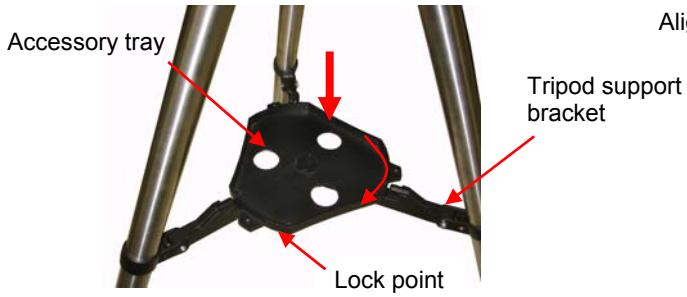

Figure 1

Figure 2

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

2. **Attach the SmartEQ** mount: Remove the Latitude Adjustment Screw from its Storage Position by unscrewing it all the way out **(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)**.

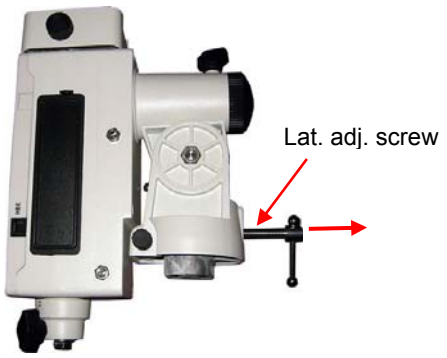

Figure 3. Remove Latitude Adjustment Screw

Figure 4. Install mount onto the tripod

Thread in the Latitude Adjustment Screw into the Adjustment Position, 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 about 30 degree, as shown in **Figure 6**.

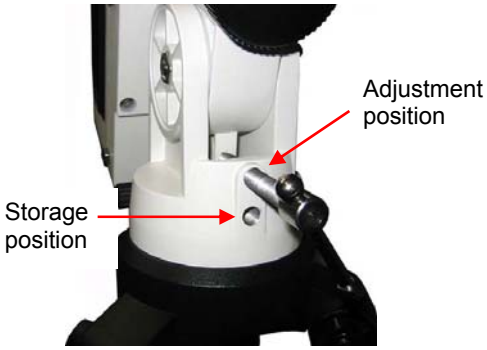

Figure 5. Move latitude adjustment screw

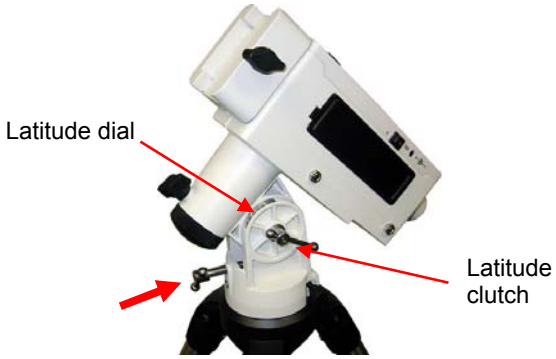

Figure 6. Adjust mount latitude

3. **Install Batteries and Connect Cables:** There are two battery compartments that each can hold 4 AA batteries **(Figure 7)**. 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. Plug hand controller into the HBX port on the mount **(Figure 8)**. Turn on power and use four Arrow keys (▲▼◄►) to rotate the mount Up, Down, Left, and Right. Use the SPEED key to change the slew rate from the slowest (1X) to the fastest (MAX).

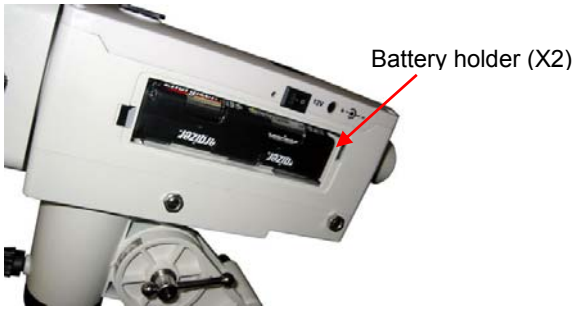

Figure 7

Figure 8

4. **<u>Set the Location Latitude and Polar Alignment:</u>** In order for an equatorial mount to track properly, it has to be accurately polar aligned. This is achieved by making the polar axis of the mount parallel to that of the Earth's axis of rotation.

   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.

   Unlock Latitude Clutch. Turn the Latitude Adjustment Screw to set your current latitude as indicated on the Latitude Dial. This should be good enough for a casual visual observation.

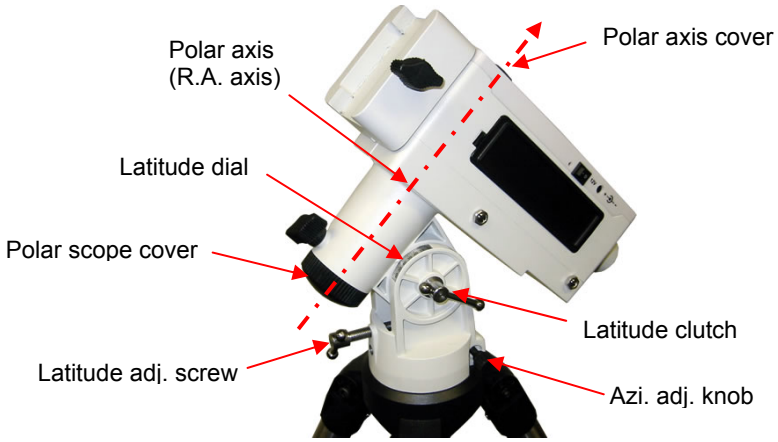

Figure 9. Align mount to the celestial pole

For a better polar alignment, one may use the polar scope opening on the R.A. axis. Take off the Polar Axis Cover and Polar Scope Cover. Release the Counterweight Shaft as indicated in **Figure 10**. Look through polar scope opening to find the Polaris. If the opening is blocked by the DEC axis, power the mount on and use the ▲ or ▼ button on the hand controller to turn the DEC axle to unblock the view. (You may use the number button to change the slewing speed. 9 for MAX speed). Loosen the Azimuth Locking Screws and adjust the mount to center the Polaris in the azimuth direction using Azimuth Adjustment Knobs. Tighten the locking screws to secure the mount. Loosen Latitude Clutch on the side of the mount, turning the Latitude Adjustment Screw to adjust the latitude (altitude) to center the Polaris along the altitude direction. Re-tighten the locking screws.

If an optional polar scope is installed, please follow the instruction to perform the polar alignment.

5. **Install Counterweight (CW):** The SmartEQ comes with one 2 lbs (0.9 kg) 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), 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. Mount a CW onto the shaft and tighten the CW Locking Screw to hold the CW in place. Tighten the CW Safety Screw.

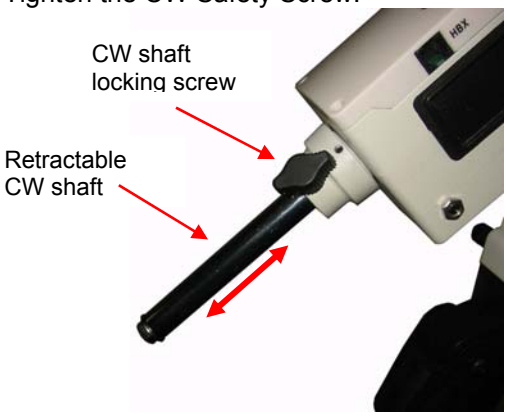

Figure 10. Release CW shaft

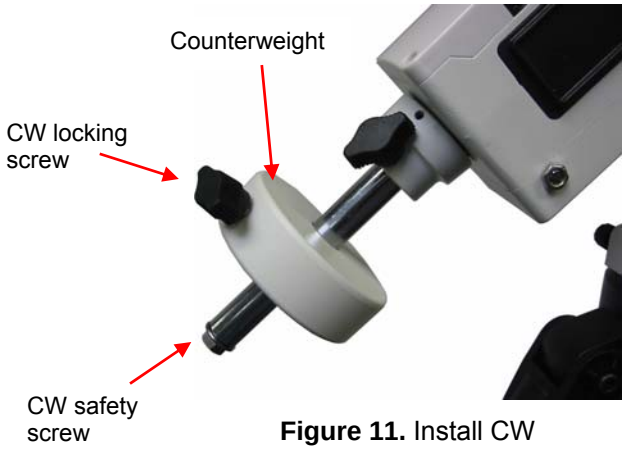

Figure 11. Install CW

6. **Attach and Balance an OTA on the Mount:** 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.

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.

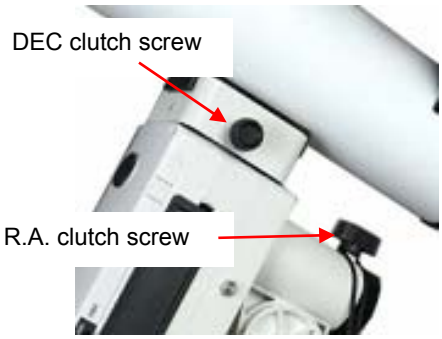

Figure 12

Balance the mount in DEC. axis

Balance in DEC axis is not that critical since the maximum payload is only 11 lbs. Release the DEC Clutch and if the OTA does not rotate along the DEC axis, it is OK. Tighten the DEC Clutch again.

Adjust the Mount to Zero Position:

The Zero Position is the position where the counterweight shaft points to ground, telescope is at the highest position with its axis parallel to the polar axis and the telescope is 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, as shown in **Figure 13**. Tighten the screws after adjustment. Make sure the hand controller is also at the zero position, which can be ensured by turn the mount power off and on again.

Figure 13

7. **Manual Operation of the Mount:** Now you can observe astronomical objects using the arrow keys of a Go2Nova™ hand controller. Flip the I/O switch on the telescope mount to turn on the mount. Use ►,◄,▼ or ▲ buttons to point the telescope to the desired object. Use the number keys to change the slewing speed. Then press **0** button to start tracking.

The mount also implements a ***Power On Tracking*** function. If you forget bring the hand controller with you or hand controller is under service, you still can use the mount to tracking the celestial object. Without plug in the hand controller, the mount will start to tracking when the power switch is turned ON. Loosen R.A. and DEC clutches (**Figure 12**), manually push the telescope in R.A. and DEC to desired observing target, and retighten the R.A. DEC clutches.

8. **Setup Controller:** The time and site information of the observation location need to be entered for precise GOTO.

Figure 14

Turn the mount power on. Wait for controller lights on. Press the MENU button. Move the cursor to ***"Set Up Controller"*** and press ENTER. Select ***"Set Up Time & Site"*** and press ENTER.

Enter the date and check if it is Daylight Saving Time using arrow keys and number keys. Enter your time zone (add or subtract 60 minutes per time zone) by entering minutes "behind" UT or "ahead of" UT, such as:

- Boston is 300 minutes "behind" UT
- Los Angeles is 480 minutes "behind" UT
- Rome is 60 minutes "ahead" of UT
- Sydney is 600 minutes "ahead" of UT

All the time zones in North America are behind UT, as indicated below:

Time Zone	Hawaii	Alaska	Pacific	Mountain	Central	Eastern
Hour behind UT	-10	-9	-8	-7	-6	-5
Enter Minutes	600	540	480	420	360	300

Find your observation longitude and latitude coordinate from your GPS navigator, a GPS capable cell phone or from internet. "W/E" means western/eastern hemisphere; "N/S" means northern/southern hemisphere; "d" means degree; "m" means minute; and "s" means second. Use number keys and arrow keys to enter your location information.

Move the cursor to the end of the screen to select Northern or Southern Hemisphere.

9. **One Star Alignment:** Perform One Star Align to correct the Zero Position discrepancy. To further improve the GOTO accuracy, refer to the full manual for more details.

10. **Go to an Object:** The mount is now ready to GOTO and tracking targets. Press MENU button, select ***"Select and Slew"*** and press ENTER. Select a category (ex. "***planets, sun, moon"***). Then select an object (ex. "moon"). Then press ENTER. The telescope will automatically slew to the object and start tracking.

11. **Sync to Target:** If the star is not in the center of the eyepiece, one can use this function to center and synchronize the object to improve the local GOTO accuracy. Press MENU button and select ***"Sync. To Target***." Press ENTER. Next use the arrow keys to move object until it is centered in your eyepiece. Then press ENTER again on the hand controller. A ***Select and Slew*** has to be performed before ***"Sync to Target"*** operation. This is most useful if you are looking for some faint objects near a bright star. ***"Sync to Target"*** is similar to one star alignment.

12. **Identify Nearby Bright Objects:** After slew to an object using hand controller, a list of nearby bright object(s) will be displayed by pressing the ? button.

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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.
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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
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