Quick Start Guide

iOptron®

The iEQ30 Pro™ GoTo German Equatorial Mount #3000E

PACKAGE CONTENTS

- Telescope Mount (with built-in GPS)
- Go2Nova® #8407 Hand Controller
- 1.5-inch Tripod
- One 10lb (4.5 kg) counterweight
- Dark field illuminating LED with cable
- AC adapter (100V-240V)

- 12V DC adaptor cable with car lighter plug
- Controller Cable X 2
- RJ9 to RS232 serial cable
- Azimuth locking screw X 2
- Low latitude adjustment knob

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 and mount firmware upgrades (check online for latest version)
- Reviews and feedback from other customers

[1.] Actual contents, specifications and color may vary.

Quick Setup

1. **Removing the Mount from the Package**: The mount is shipped with R.A. axis released to avoid gear damage. Please tighten the R.A. Locking Lever before pull the mount out of the package.
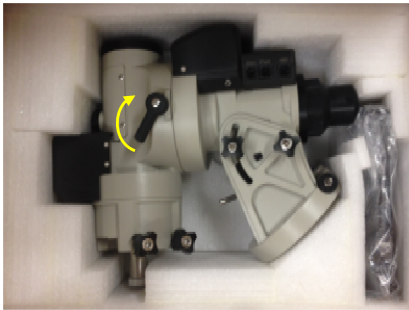
Figure 1

2. **Setting Up tripod**: Expand the tripod legs and lock the Tripod Spreader so that the tripod legs stay open (Figure 2). Adjust the tripod height by unlocking and re-locking the tripod legs to desired height. Position the tripod so that the Alignment Peg faces south. *(The Alignment Peg may be moved to the opposite position if used at latitude lower than 20º to avoid counterweights hit the tripod leg)*

Alignment Peg

Tripod Tray

Tripod Lock

Figure 2

3. **Attaching the Mount:** Back out the Azimuth Adjustment Knobs (next to the Bubble Level Indicator, Figure 3) to prevent blocking the Alignment Peg. Put the mount onto the tripod head with bubble level on top of the Alignment Peg (Figure 4). Secure the mount head by tightening Azimuth Locking Screws. Level the mount by adjusting individual leg. You may use the build-in Bubble Level Indicator or an external level to check level.

Az. Locking Screw

Bubble Level

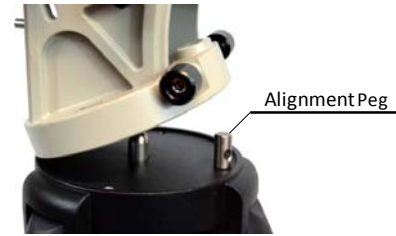Az. Adjust. Knob

Figure 3

Alignment Peg

Figure 4

4. **Setting the Latitude:** Unlock R.A. Clutch and rotate the mount 180° around the R.A. axis to move the dovetail saddle face upside. Tighten the R.A. Clutch.
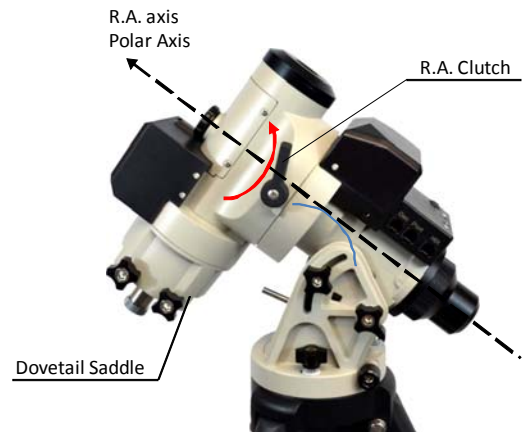
R.A. axis
Polar Axis

R.A. Clutch

Dovetail Saddle

Figure 5

Un-screw the Latitude Adjustment Lever from Latitude Adjustment Knob (Figure 6). Turn the Latitude Adjustment Knob to set your current latitude, which is displayed in Latitude Mark Window (Figure 6b). Use the Lever for fine adjustments as needed. Always set the latitude without the load.
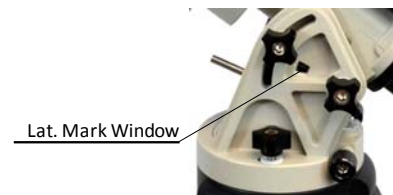
Lat. Adjust. Lever

Lat. Adjust. Knob

Low Lat. Position

High Lat. Position

Lat. Mark Window

Figure 6

If your latitude is between 25º to 65º, set the Position Safety Pin to the High Latitude Position. The factory default position is set at 25º to 65º, as shown in Figure 6. For latitude between 0º to 35º, set the Position Safety Pin to the Low Latitude Position. Install the matching short Latitude Adjustment Knob

as well. You should change the position before attaching the mount to the tripod head.

5. **Installing Counterweight (CW) Shaft**: Unscrew the CW shaft from the top of the mount and thread it into the opening of the DEC axis.
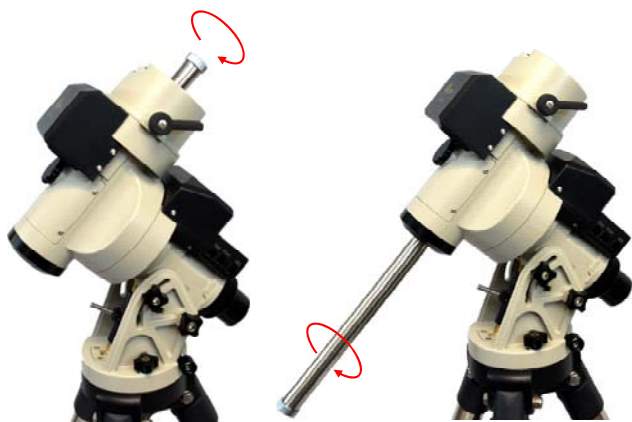

Figure 7

6. **Installing Counterweight**: iEQ30 Pro mount comes with one 10lb (4.5kg) counterweight (CW). ***Release the R.A. Clutch to set the R.A. axis free before loading the CW.*** Tighten the CW Locking Screw to hold the CW in place. Tighten the CW Shaft Safety Screw. Use an optional CW shaft extension or additional CW to balance a heavier or larger OTA (Optical Tube Assembly).

7. **Balancing the Payload**: After attaching the scope and accessories, the mount must be balanced in both R.A. and DEC axes to ensure minimum stress on the mount driving mechanism. Please refer to the full manual for balance procedures/tips.

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

8. **Connecting Cables:** Attach one end of a coiled RJ-11 cable into the socket on the bottom of the DEC unit (Figure 8 Left) and the other end into the DEC port located on the side of main control board (Figure 8 Right).
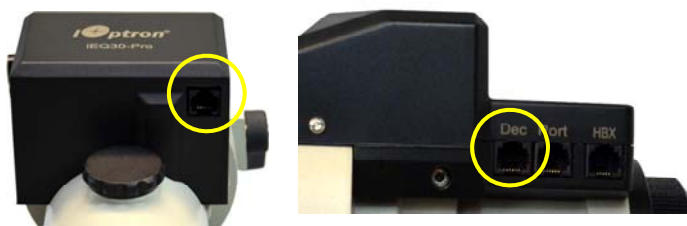

Figure 8

Using another RJ-11 cable to connect the hand controller to the HBX port on the mount.

Figure 9

Plug 12V DC power supply into the DC12V socket on the other side of the main board. The red LED under the POWER mark will be on when the Power Switch is turned on.

ON/OFF

Figure 10

9. **Setting Controller:** The iEQ30 Pro mount is equipped with a GPS receiver, which will receive the local time, longitude and latitude information from satellites after the link is established.

   However, In order to make hand control reflect your correct local time, time zone information and Daylight Saving Time still need to be entered. Press **MENU**=> "**Settings**" => "**Set Time & Site**". Change the letter "N" to "Y" if it is Daylight Saving Time. Change it back to "N" when it ends.

Figure 11

Enter your time zone offset to the UTC, such as:
- Boston is " UTC -300 minutes"
- Los Angeles is " UTC -480 minutes"
- Rome is " UTC +60 minutes"
- Sydney is " UTC +600 minutes"

All the time zones in North America are "UTC –XXX minutes"

You may enter the date and location using arrow keys and number keys. You may 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.

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

10. **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 Locking Screws and Latitude Locking Screws. Use the two Azimuth Adjustment Knobs to center the pole star in the azimuth direction. Use the Latitude Adjustment Knob for the latitude adjustment. Tighten the screws after adjusting.

   Quick Polar Alignment:
   Fast and accurate polar alignment can be performed with iOptron's AccuAlign™ Polar Scope.
   a. Thread the dark field illuminating LED into the thread-in hole on a polar scope. Plug the LED cable into the LED and the Reticle socket located on the main control board.
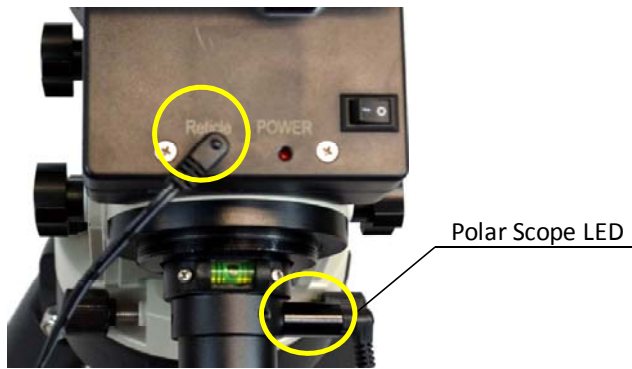

Polar Scope LED

Figure 12

   b. Turn the mount power on. Use Hand Controller ("**Settings**" => "**Set Eyepiece Light**") to set the illumination intensity.
   c. Use the "▲" or "▼" button to turn the DEC axis to unblock the Polar Scope view (there is a hole on the DEC axis).
   d. Use the "◄" or "►" button to turn the RA axis to rotate the Polar Scope dial to a clock position where 12 is at the top, as shown in Figure 13.
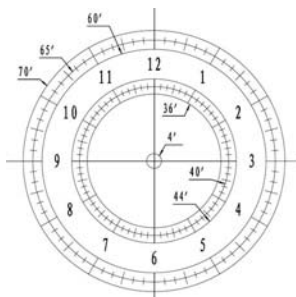

Figure 13

e. Use Hand Controller (**MENU** => "**Alignment**" => "**Pole Star Position**") to display the Polaris Position on the LCD screen, as indicated in Figure 14 (a). For example, June 22, 2014, 20:19:42 in Boston, US (alt N42º30'32" and long W71º08'50"), UTC-300 minutes, the Polaris Position is 0h45.8m and 40.4m.
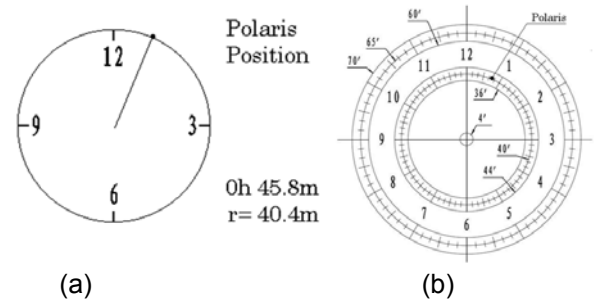

Figure 14

f. 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 Figure 14 (b).

Polar Iterate Alignment (BrightStar Alignment)
When the pole star is not in sight:
(1) Level the mount and set it at Zero Position. Align the telescope parallel to the R.A. axis of the mount. If a finder scope is used, adjust it to be parallel to the telescope optical axis. An eyepiece with crosshairs is recommended.
(2) Use the HC (**MENU** => "**Alignment**" => "**Polar Iterate Align**") to display the azimuth and altitude position of several bright stars near the meridian. Select one that is visible and high in altitude as the Alignment Star A. Follow the HC instructions to move the Star A to the center of the eyepiece with the combination of using Latitude Adj. Knob and "◄" / "►" buttons. Press **ENTER** to confirm the centering. Next, select a bright star that is close to the horizon as the Alignment Star B. Center it using the Azimuth Adj. Knob and "◄" / "►" buttons (The "▲" and "▼" buttons are not used here). Press **ENTER** to confirm.
(3) The telescope will now slew back to Star A to repeat the above steps. The iterations can be stopped when it is determined that the alignment error has been minimized. Press the **BACK** button to exit the alignment procedure at anytime that the result is acceptable.

11. **Setting 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. *It needs be set.* Use Hand Controller (**MENU** => "**Zero Position**" => "**Set Zero Position**") to bring up menu. Loosen the DEC and R.A. Clutches to manually adjust the mount to

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the Zero Position, or use the Hand Controller to slew the mount to Zero Position and confirm the setting. Tighten the screws after each adjustment. Then Press **ENTER.** Perform **Set Zero Position** to check the zero position if the mount loses its power during slew or after firmware upgrading.

12. <u>**Manual Operation:**</u> 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 the **STOP/0** button to start tracking. Press the **STOP/0** button again to stop tracking.

13. <u>**One Star Alignment:**</u> Make sure the mount is at ZERO position by pressing **MENU** => "**Zero Position**" => "**Goto Zero Position**". 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.

14. <u>**Go to an Object:**</u> The mount is now ready for GOTO and tracking targets. Press **MENU** => **"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. <u>**Sync to Target:**</u> 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 to center the object in eyepiece. Press **ENTER** again to complete this function.

[**TIP**: "**Sync to Target**" will only function after a "**Select and Slew**" operation. This is most useful when looking for faint objects near a bright star.]

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

16. <u>**Putting the Mount back into the Package:**</u> Loosen the RA clutch before put the mount back into the packing box for shipping or transportation.

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 (RMA) number must be obtained from iOptron in advance of return. Contact iOptron via e-mail at support@ioptron.com or call 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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Tel. (781)569-0200
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Monday-Friday 9AM-5PM EST

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