

USING *THESKY*[™] SOFTWARE V. 5.00.014

These instructions are based on Software Bisque's *TheSky*[™] version 5.00.014. *TheSky Astronomy Software* is a trademark of Software Bisque. The micro-controller chip in your GTO control box must be dated November 13, 2000 or later in order to access all of these features. Check the date by opening the top of the GTO control box and looking for a label on one of the large, square chips. If your chip is not dated at all, it was probably programmed prior to July 1999 and is an early version.

Polar Alignment

The telescope must be polar-aligned to slew accurately. This is easiest to do if you have a polar alignment scope or use the routine in the keypad.

Hardware Setup

- 1) **Plug the computer cable into one of the RS-232 ports on the GTO Control Panel** (it doesn't matter which one). Use a straight-through computer serial cable with a 9-pin connector on one end (to attach to the servo box of the mount) and a connector that will attach to the serial port of the computer that will be used. Determine which COM port is available on your computer
- 2) **Plug the other end of the cable into your computer.**
- 3) **Plug power cord into GTO Control Panel on the mount. Be sure all of your motor cables are locked in place, as well.**

Software Setup

Turn on your computer and open *TheSky* software. These instructions assume that the keypad is NOT plugged in.

- 1) **Setup Site Information.** You can skip this if you have already entered the information in a previous session and it has not changed.
 - a) **Click DATA in the menu bar.**
 - b) **Click SITE INFORMATION.**
 - c) **Enter your location, date and time information.**
 - d) **Click OK or APPLY and CLOSE.**
- 2) **Set telescope type.**
 - a) **Click TELESCOPE in menu bar.**
 - b) **Click SETUP.** The Telescope Setup box will appear.
 - c) **Select "Astro-Physics GTO German Equatorial Mount."**
 - d) **Click SETTINGS.**
 - e) **Choose the COM port that you are using on the computer and set the baud rate to 9600.**
 - f) **Click OK, select any other display options that you prefer.** Refer to the manual provided with your software.
 - g) **Close the Telescope Setup box.**
- 3) **Link mount to *TheSky***
 - a) **Click TELESCOPE again.**
 - b) **Click LINK and ESTABLISH.** A crosshair circle will appear on the star map.
 - i) **GTO control box chip dated November 13, 2000 or later.** If you parked your mount with *TheSky*, the white crosshair circle will point to the position that you had selected to Park (even if you turn the power off between sessions).

Even if you didn't park with *TheSky* in the previous session, this chip will remember the position of the mount when the session ended (auto-park feature). As long as you have not moved your telescope, this position will still be correct and you are ready to begin observing. If the scope was moved, follow the Sync procedure below.

- ii) **GTO control box chip dated prior to November 13, 2000.** If you had parked with *TheSky* in the previous session and the power to the mount has remained on, the white crosshair circle will indicate your park position. If the power is turned off, the mount will NOT retain this information in its memory (it does not have the auto-park feature). Note, if you had parked with the keypad you must un-park with the keypad to gain the benefits of parking.
- 4) **Initialize your telescope.** This step is no longer necessary for any GTO mount. However, if you get the error message "No response from the device. Error code = 203 0xcb), " when attempting to synchronize or slew the telescope (but can see the cross hairs on the screen), try initializing the mount using the Initialize command before continuing. Click Telescope | Options | Initialize to initialize the control system's date, time, time zone, latitude and longitude.
- 5) **Synchronizing the mount with *TheSky*.** This procedure is only necessary if your telescope is not pointing to the position indicated by the white crosshair circle when you establish your link. By syncing, you will tell *TheSky* where your telescope is pointing.
 - a) **Point your telescope to a known star (or object).**
 - b) **Center the object in your eyepiece manually or with the N-S-E-W buttons.**
 - c) **Using *TheSky*, move your mouse cursor to the location of this object on the star map. Click on the star.** The "Object Information" dialog box will appear. Be sure the information matches the target object.
 - d) **Click on the Telescope tab.**
 - e) **Click on SYNC.**
- 6) **At this point, the white crosshair circle on the screen will move to the object on which you have synced.** Continue using *TheSky*, as usual.
- 7) **Parking the mount.** This feature can be used by all GTO mounts. However, if your chip is dated earlier than 11-13-00, the power to your mount must remain on between sessions. Keep in mind, we recommend that the power be disconnected so that you minimize the chance of damage due to lightening or power surges.
 - a) **Slew to the position that you want to designate as your park position.**
 - b) **Click Telescope | Options | Set Park Position to set that position.**
 - c) **When you have completed your observing session, select Telescope | Options | Park.** The telescope will slew to the position that you have established.

Functions available to all GTO control box versions

- *TheSky* always places the Astro-Physics control system into the "long format" upon establishing a link.
- The Motion control window (click Telescope | Motion Control) allows four speed motion control (1x, 12x, 64x and 900x) by pressing and holding buttons down to adjust the telescope's position.
- Motion control window (Telescope | Motion Control) allows telescope to be "jogged" (a small telescope movement) a specified amount in any direction. Note, if you have a chip dated earlier than 11-13-00, the mount will go past the object and come back.
- Click Telescope | Options | Set Track Rates to specify a Sidereal, Solar, Lunar or Zero tracking rate (stops all tracking). The zero tracking rate requires a chip dated 11-13-00 or later.
- Click Telescope | Options | Focus Control to adjust a pulse focuser from *TheSky* (tested with JMI NGF Series focuser).
- Click Telescope | Options | Reticle to adjust the brightness of your reticle.

- Click Telescope | Options | Set Park Position to specify the "park position." TheSky will return the telescope to this position before parking the mount.
- TheSky queries the user if s/he wishes to park the telescope before terminating the link or exiting the software if the link is still active.
- Click Telescope | Options | Park to park the telescope. If you have a chip dated 11-13-00 or later, the park position will be remembered if you turn the power off. The park position will not be remembered if you have an earlier chip. In this instance, the white crosshair circle will point to the pole when you power up again.

Functions for mounts with chips dated 11-13-00 or later

- Click Telescope | Options | Park to park the telescope. If you have a chip dated 11-13-00 or later, the park position will be remembered if you turn the power off.
- Setting the tracking rate to zero from TheSky (by clicking Telescope | Options | Set Track Rates).

Using the Keypad and TheSky Together

You can switch back and forth between the keypad and *TheSky* as you wish. The mount will supply the RA and Dec position data to both continuously, so that they always know where they are pointing.

If you slew with the keypad

- Keypad displays - When you have arrived at the object, the object data screen will appear. If you return to the Objects Menu, you can press <PREV to see the data on the last object you selected. The NEXT> button will show you the current position.
- *TheSky* displays – The crosshair circle will move across the star map on your computer screen as your mount slews. Click on the object to see the Object Information.

If you slew with *TheSky*

- *TheSky* displays – The crosshair circle will move across the star map on your computer screen as your mount slews. Click on the object to see the Object Information.
- Keypad displays – The current object screen display will not change to show data for the new object. However, if you go to the Objects Menu and press the NEXT> button, the correct current position will display.

Using the Meridian Delay function with *TheSky*

- Establish the link with *TheSky* and set the Meridian Delay on your keypad, as desired (please be sure to read the section regarding Meridian Delay carefully so that you fully understand how it works).
- Now the Meridian Delay function is active whether you slew with the keypad or *TheSky*.

Using Guide rate (keypad) and Motion Controls (*TheSky*)

- When you send a command to the mount using the motion controls of *TheSky*, you are sending the corresponding button rate to the mount. This is the same as if you were setting the button rate for the N-S-E-W buttons on the keypad.
- During a session, the servo drive (GTO control box) will be in whatever mode you left it in last, from whatever source you commanded. For instance, if you set the button rate on the keypad to 1x, then go to *TheSky* and issue a Move command (equivalent to 12x), the mount will remember the 12x even though your keypad says 1x. When you push the N-S-E-W buttons on the keypad, the mount will respond at the 12x that is in its memory. You will have to reselect 1x on your keypad to restore that rate to the N-S-E-W buttons.

Safe Zone (keypad) and Telescope Limit Lines (*TheSky*)

- If you are issuing slew commands using the keypad, the safe zone limits entered into the keypad will be honored.
- If you are slewing with *TheSky*, the Telescope Limit Lines will be used. These are two independent methods of determining where your telescope can point safely based on the parameters you set.

Starting your session with the keypad plugged in

- Use your normal startup routine using the keypad. Then, establish the link with *TheSky*. The crosshair circle will appear at the location your telescope is pointing.

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