KODO Controller

Go-To Mount Control

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Introduction

The Kodo controller provides the motor control for stepper-motor mounts such as the SS-One portable mount as well as some 3rd party mounts such as Takahashi and Losmandy. In addition, the controller provides go-to pointing capability and a database of stars and other astronomical objects (Messier, NGC, IC).

Getting Started

1. Prior to powering up, insure all cables are connected properly:
    - Mount - Kodo controller
    - 12V DC power to Kodo (Do not connect 5V power)
    - USB devices such as cameras

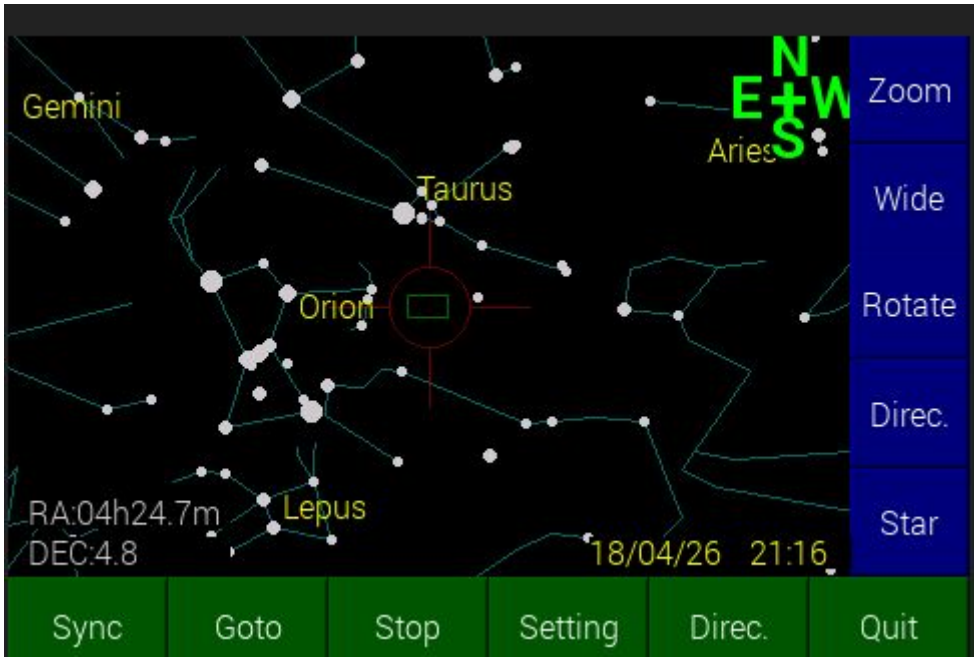
2. Turn the Kodo power switch on and wait for the internal computer to boot up to the main menu.

3. Check that the time and location settings are correct by entering the [Polar] menu. These are displayed in blue on the main screen of the [Polar] function. These parameters are saved internally, so if they have been previously set, they should be unaffected. If necessary, set them using the [Time] and [Locate] functions on the [Polar] menu screen. Refer to the Kodo manual on polar alignment setup for detailed instructions. Return back to the main menu after verifying the time and location.

4. Start the Go-to mount control by selecting [GOTO] from the main menu.

Go-to Main Menu

The main menu screen for the Go-to mount control [GOTO] is shown below:



At the top right of the star map viewport, the cardinal points of the compass are shown in green. Tapping the portion of viewport on that side moves the viewport in that direction. For example, tapping the left side of the viewport will move to the left (eastward). In terms of sky coordinates:

- Moving east = +RA
- Moving west = -RA
- Moving north = +Dec
- Moving south = -Dec

Note that the orientation of the sky map can be rotated clockwise in 90 degree increments by pressing [Direc]. Movement of the viewport is correspondingly rotated. Always refer to the green cardinal point indicator at upper right to maintain correct orientation when navigating the star map.

Blue buttons along the right edge the screen provide additional aids to navigating around on the star map:

- [Zoom] - Magnify the center of the map. Increasing magnification brings more stars and other astronomical objects into view.
- [Wide] - Decrease magnification. At the lower magnification settings, the map detail is reduced to constellation lines and labels to avoid clutter on the display.
- [Rotate] - rotates the orientation of a rectangle representing the area of the imaging camera based on parameters entered used the green [Setting] button (described below) on the bottom of the screen.

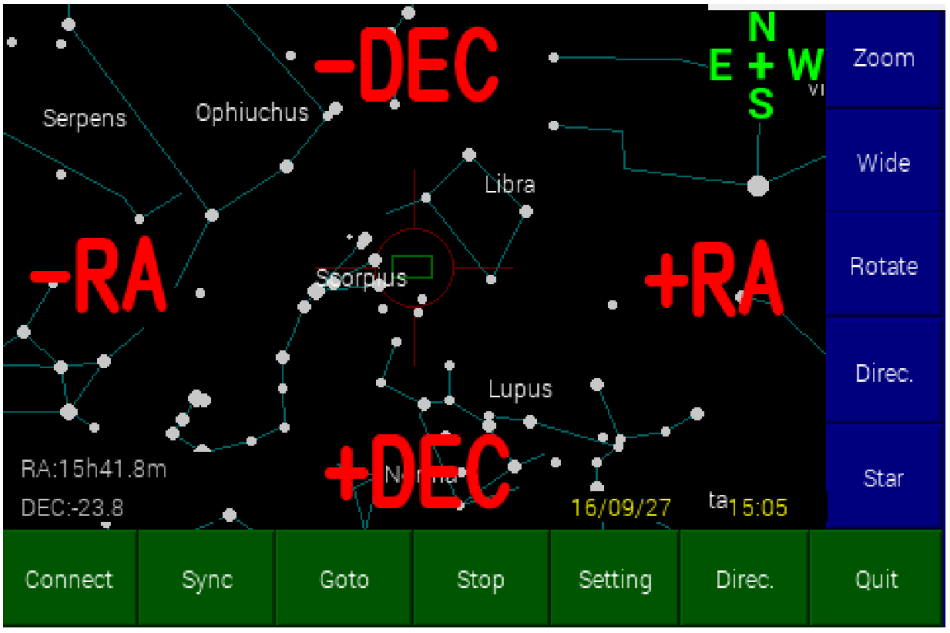
- [Direc] - Show alternative movment controls. The buttons on the left allow positioning the view relative to the local zenith. The controls on the right allow a constellation area to be centered in the view.

- [Star] - Allows centering of the sky map by object catalog designator (Messier, NGC, or IC) or by specifying RA/Dec coordinates. Enter coordinates by clicking on the numeric digits in the order: RA *hh mm ss* Dec *dd mm*. Use leading zeroes to enter the desired values.

Go-To Procedure

Establishing Mount Connection

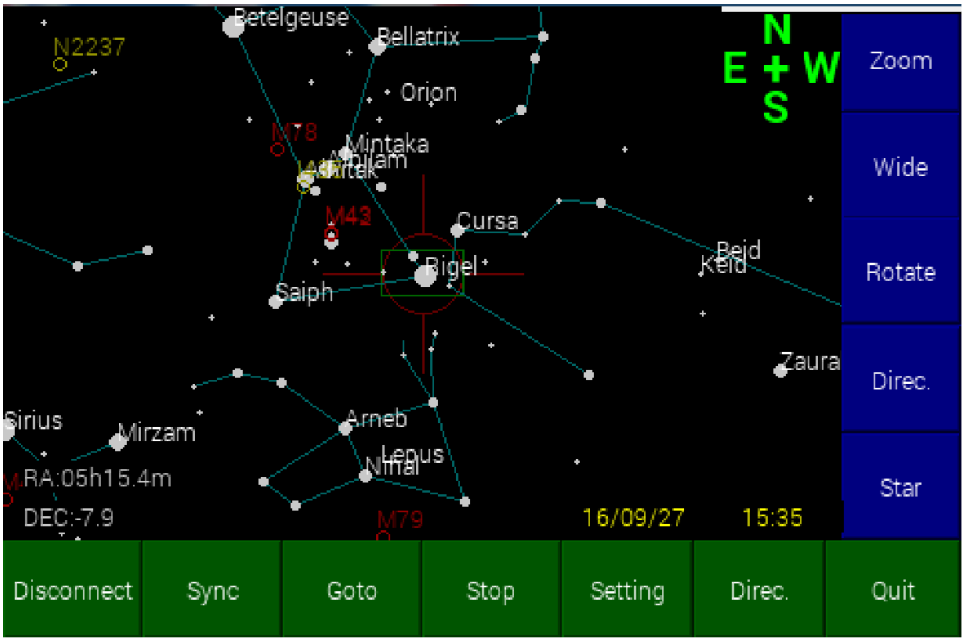
To operate the mount in Go-to mode, the Kodo controller must first establish connection with the mount (e.g. power up motors). Press [Connect] which is in the lower left corner of the initial screen:



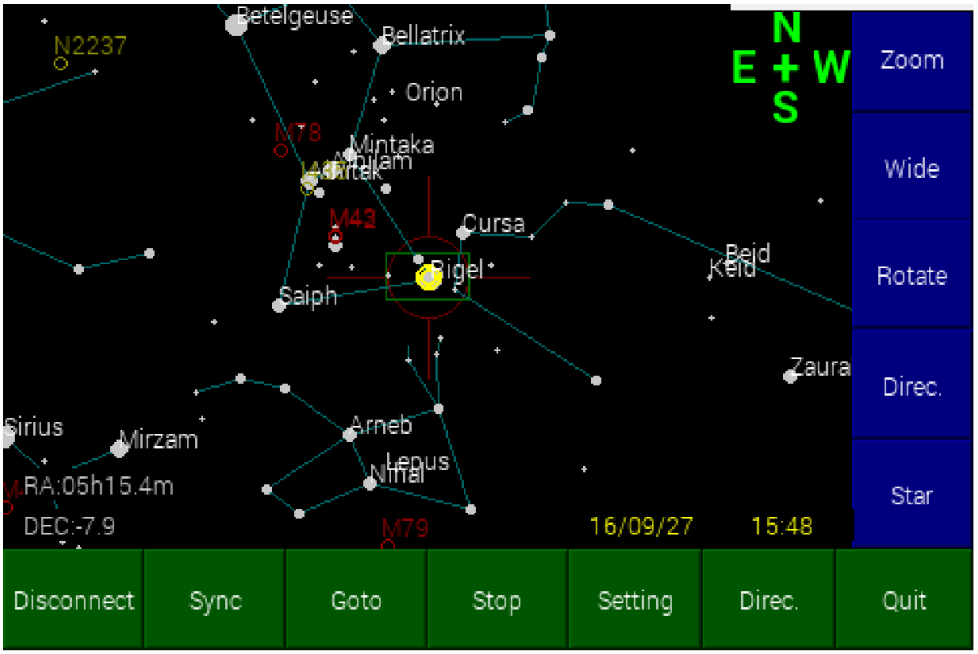
If the lower-left corner button is labeled “Disconnect”, then the controller is already controlling the mount.

Synchronizing Position

The next step is to synchronize (sync) the controller's position (as shown on the star map) to the actual pointing position of the mount. First center a bright star in the main scope or finder scope. Then move the map (press on the map in the direction of desired movement) so that the sync star is centered on the map. Magnify the map for accurate positioning. In the example below, Rigel is being used as the sync star.



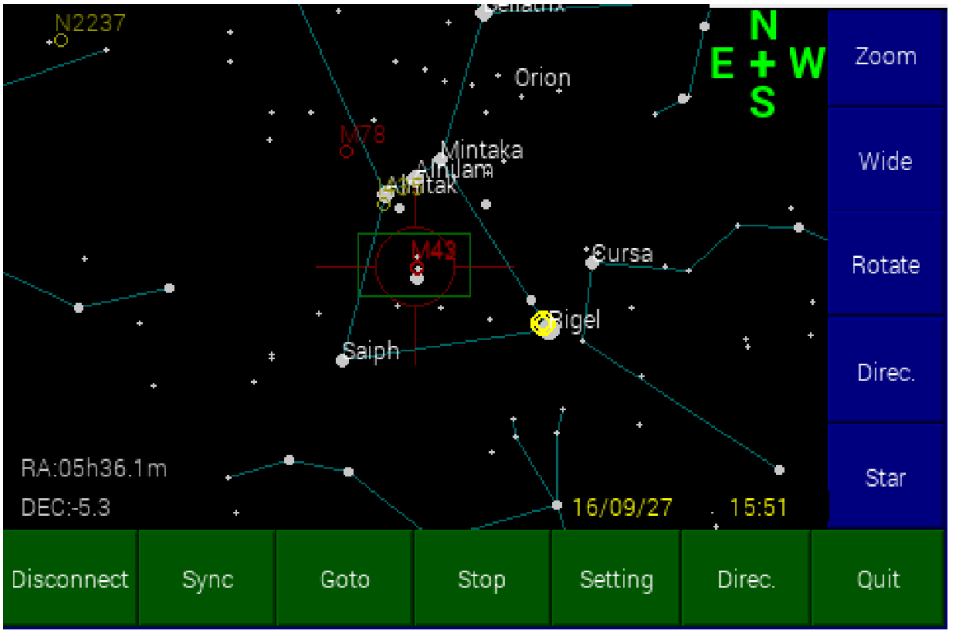
When the map is accurately centered, press [Sync] to establish synchronization between the controller map and mount. A yellow dot will appear on the sync star as shown below:



Multiple sync stars are recommended for improved pointing accuracy.

Go-To Target

To go to a target, move the map to center the target by pressing in the star map on the side corresponding to the direction desired. In the example below, M42 has been centered on the map as a target:



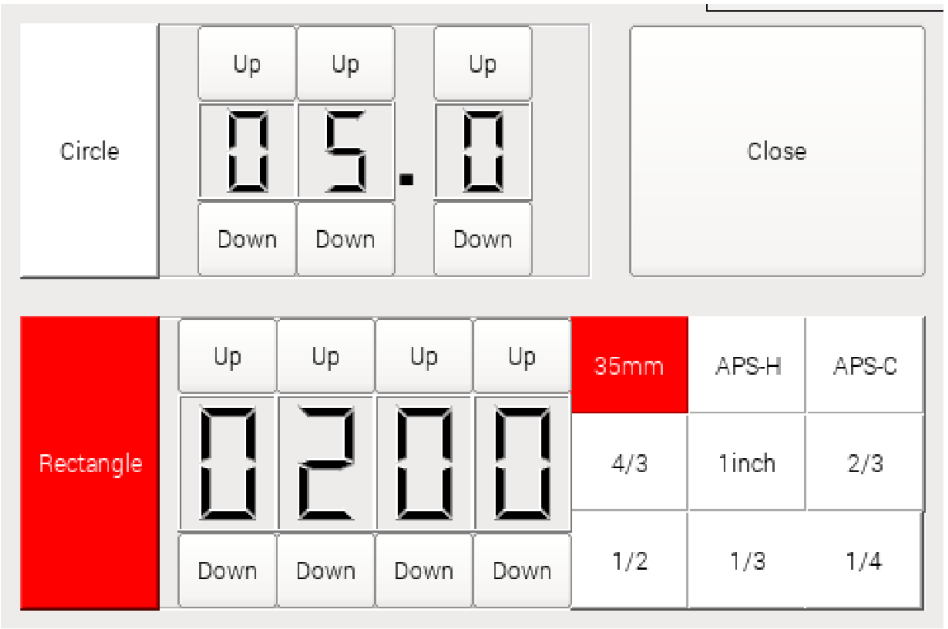
Press [Goto] to start the mount slewing to the designated target. Press [Stop] to abort the mount slewing.

[Setting]

The [Setting] button allows setup of additional user map preferences.

[Image Field]

The [Image Field] button allows customization of the field of view indicator at the center of the sky map so that it matches your camera sensor or eyepiece's field of view.

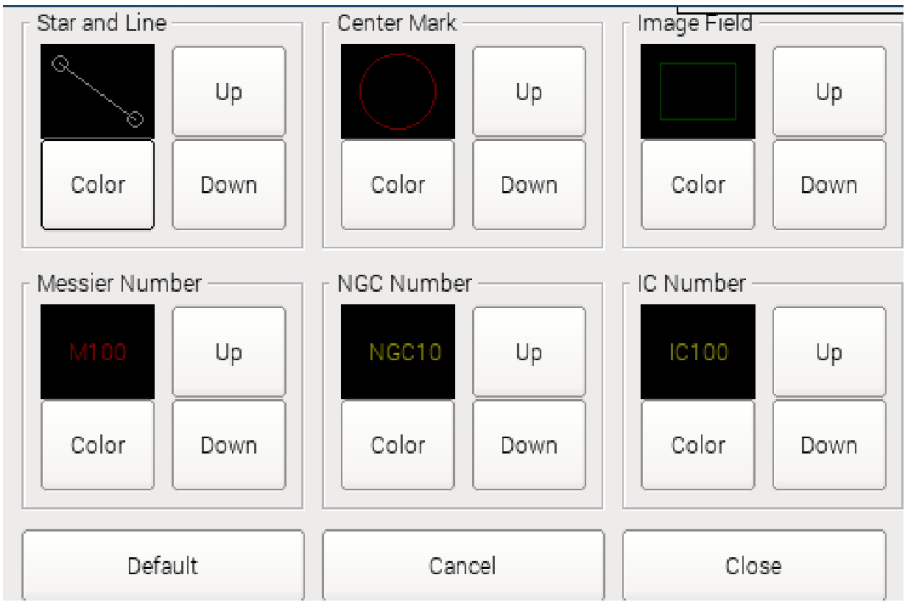


Select [Circle] to set a field of view for an eyepiece. Set the field of view value in degrees (5 degrees in the example).

Select [Rectangle] if you are primarily using a camera. Select the telescope focal length (mm) and sensor size to set the size of the field of view box on the star map.

[Color]

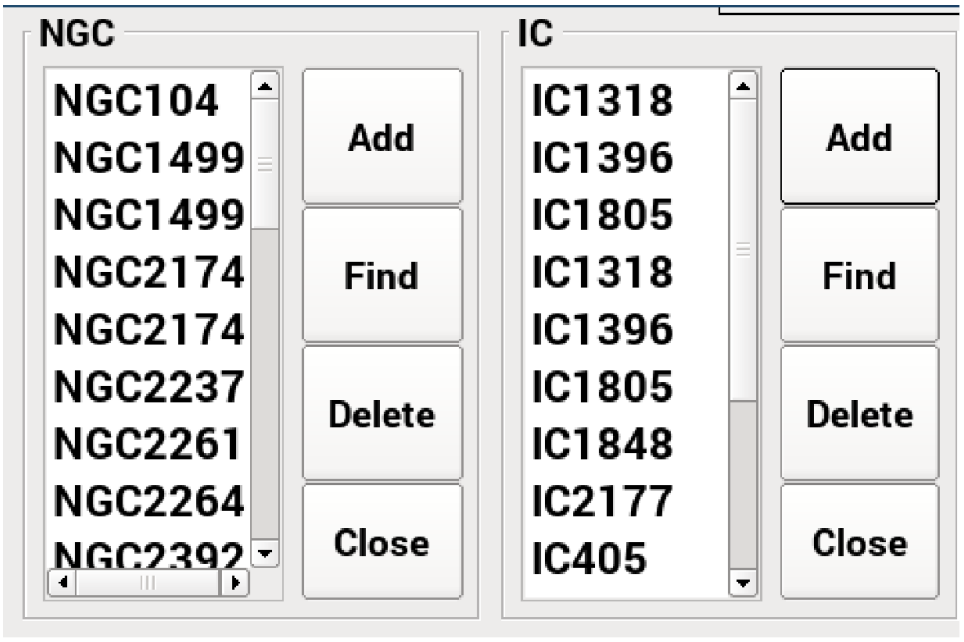
The [Color] button opens a setup screen allowing you to customize the appearance of the star map.



For each of the star map markers or labels, press [Color] to cycle through 8 possible color selections and use the [Up] or [Down] button to set the brightness for that color.

[View NGC/IC]

This control allows the map display object lists to be customized.



Add	If the designated object is not listed, press [Add] to retrieve it from the internal database.
Find	Search the designated object. Press [Find] to search within a list.
Delete	Remove an object from the display list.
Close	Return to Setting menu.