



MEADE[®]
INSTRUMENTS

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Instruction Manual

AudioStar™

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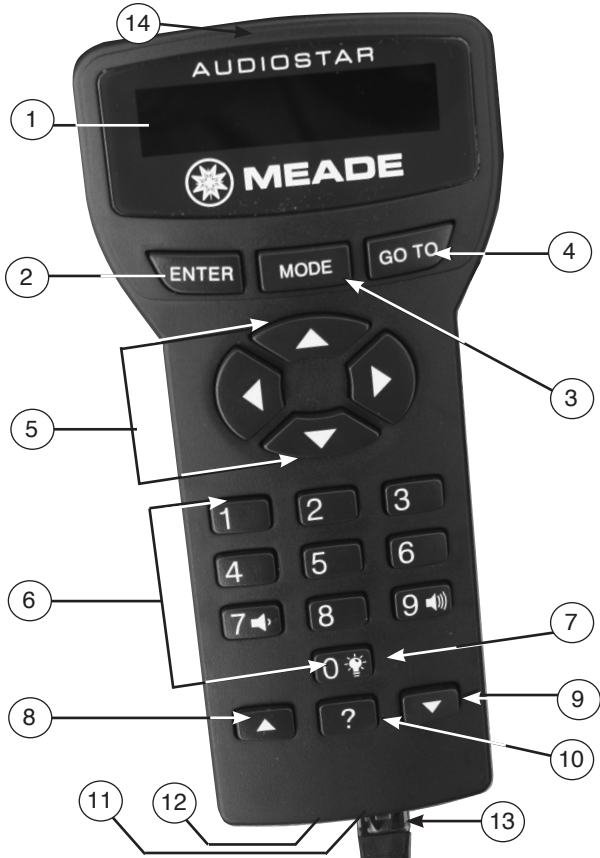


Fig. 1a: The AudioStar Handbox - Front View

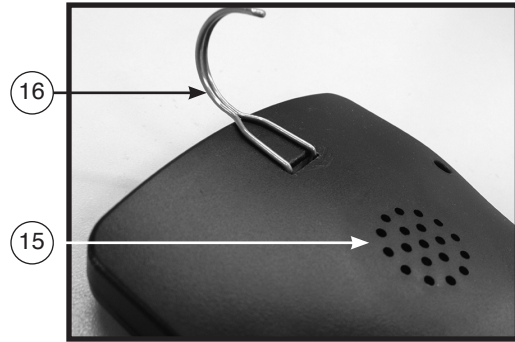


Fig. 1b: The AudioStar Handbox - Back Detail

Handbox Features

1. **Liquid Crystal Display (LCD) Screen** - A 2 line, 16 character each line, information screen. Brightness and contrast of the screen is adjustable.
2. **ENTER Key** - Completes a data entry or selects an AudioStar function.
3. **MODE Key** - Exits the current function and returns to the previous menu. Press MODE instead of ENTER to void any data input or feature selection. Pressing MODE for more than 2 seconds displays telescope status.
4. **GO TO Key** - Moves the telescope to selected objects or coordinates.
5. **Arrow Keys** - Moves the telescope in any of four directions. When data is entered, the arrow keys move the screen cursor.
6. **Number Keys** - Enters numeric data. When not used to enter data, the number keys select telescope motor speeds (1 is slowest, 9 is fastest).
Note: While the audio descriptions are playing, the “7” & “9” keys adjust the speaker volume. Press “7” to decrease the volume. Press “9” to increase the volume.
7. **“0” Key** - Enters data or turns the Utility Light on and off.
8. **Scroll Up Key** - Views menu options one entry at a time. During a moving message, this key increases message speed.
9. **Scroll Down Key** - Views menu options one entry at a time. During a moving message, this key decreases message speed.
10. **“?” Key:** When audio is playing the “?” key stops the audio, if a second audio file is available, pressing the “?” key skips to the next audio file.

When audio is not playing, the “?” key accesses the Help file. Help provides on-screen information on how to accomplish whatever task is currently active. Hold down the “?” key and

WARNING: Never use AudioStar to move a telescope to look at the Sun! Looking at or near the Sun will cause *instant and irreversible* damage to your eye. Eye damage is often painless, so there is no warning to the observer that damage has occurred until it is too late. Do not point a telescope or its viewfinder at or near the Sun. Do not look through a telescope or its viewfinder as it is moving. Children should always have adult supervision while observing.

- then follow the prompts on the display to access details of AudioStar functions in the Help feature. The Help system is essentially an on-screen instruction manual. If you have a question about an AudioStar operation, e.g., INITIALIZATION, ALIGNMENT, etc., hold down the “?” key and follow the directions that scroll on the second line of the LCD screen. When a word appears in [brackets], press “ENTER” to access the AudioStar Glossary. A definition or more detailed information is displayed. Press “MODE” to return to the scrolling AudioStar Help display. When satisfied with the Help provided, press “MODE” to return to the original screen and continue with the chosen procedure.
11. **Coil Cord Port** - Connects the coil cord (13, Fig. 1a) to AudioStar.
 12. **Serial Port** - RS-232 cable port to AudioStar.
 13. **Coil Cord** - Connects between AudioStar and the telescope.
 14. **Utility Light** - Illuminates objects such as a watch or star chart. Pressing the “0” key turns the utility light on and off.
 15. **Speaker Opening:** Built-in speaker plays Astronomer Inside audio content (15, Fig. 1b).
 16. **Hanger:** Allows the handbox to be conveniently hung onto the telescope, for easy access and storage.

Introduction

This manual describes applications of the AudioStar Computer Controller with various models of Meade telescopes:

AudioStar assists the observer with a large variety of features, including:

- Astronomer Inside™ audio content. Listen through its built-in speaker as it tells you fun and informative descriptions of over 500 night sky objects as you actually view them in the eyepiece.
- Control the movement of the telescope to locate terrestrial and astronomical objects.
- Catalog of events (e.g., Moon phases, meteor showers, etc.).
- Guided tours of the best objects based on date and location.
- AudioStar's database includes over 30,000 astronomical objects.
- A glossary of over 90 descriptions and definitions.
- A built in Help function by pressing the “?” key.
- Utilities including eyepiece magnification, alarms, battery monitor, power saving functions, and more.
- Connect to a computer to remotely control the telescope.

This Instruction Manual begins by explaining the operation of AudioStar in sequence from turning on power to locating the first object in the sky. The telescope and manual should be used together to complete this important series of operations. The balance of the manual is a reference for additional functions.

The first time AudioStar power is applied, additional activities are required. Pick a comfortable location and take the time necessary to read each step carefully. When viewing is required, move to an open area outside and continue operation.

Initializing AudioStar

This section describes how to initialize AudioStar. Perform this procedure the first time you use AudioStar or after performing a Reset. AudioStar will ask you to enter the current time and date and to choose your observing location and you telescope's model number from the list it displays.

1. Tighten the vertical and horizontal locks.
2. Make sure that AudioStar is connected to the HBX port of the telescope's computer control panel.
3. Flip the telescope power switch to the ON position.
4. The AudioStar screen displays a copyright message, followed by a short beep. The screen then displays “WELCOME TO AUDIOSTAR”. The next screen asks you choose one of two languages. Press either of the two scroll keys (Fig. 1a, #7) to toggle between the two choices. Press the “ENTER” button to make your selection. Note that the default language is English. This prompt will occur only during an initial start-up, or after resetting the handbox. Then AudioStar takes a few moments to start you the system.

Copyright Screen

Language Screen



5. Press the MODE key to enter AudioStar's menu. The telescope will then test its motor function by moving slightly in the horizontal and vertical directions.
6. Next, enter your location by either zip code or city. Press the 1 key to enter by zip code or the 2 key to enter by city. If you choose to enter your location by city, you will then be prompted to enter the Country/State followed by the nearest city (listed alphabetically) to your observing location. Use the scroll keys to cycle through the database of countries, states and provinces. Press ENTER when the correct location displays.
7. AudioStar then requests the status of Daylight Savings Time. Press "1" for Yes or "2" for No. Note: Daylight Savings Time may be referred to by a different name in various areas of the world.
8. Finally, "Telescope Model" displays. Using the SCROLL KEYS, cycle through the list of telescope models and press ENTER when your model displays.
9. AudioStar then requests the current date. Use the Number keys (6, Fig. 1a) to enter the digits for the date. Use the arrow keys (5, Fig. 1a) to move back and forth from one number to the next in the day display. Next, use the Right Arrow key to move to the month position. Use the Scroll keys (7, Fig. 1a) to cycle through the list of months. When the current month is displayed, use the Right Arrow to move to the year position. Use the Number keys to enter all four digits of the current year. Press ENTER when the entire date has been entered.
10. AudioStar then requests the current time. Use the Number keys to enter the time. (Use a "0" for the first digit if it is less than 10.) Use the Arrow keys to move from one number to the next. Press one of the Arrow keys to scroll to "AM" or "PM". If you select the blank choice that follows "AM" and "PM", the clock displays the time in a 24-hour (military time) format. Press ENTER to start the clock.

11. System initialization is complete and AudioStar now displays "Align: Easy"

AudioStar Initialization Complete: In future sessions, AudioStar only requests the date and time during the power-on sequence. Other items (such as motor calibration, site, and telescope model) remain unchanged from the previous session.

After initializing, AudioStar pauses at the alignment menu. Alignment relates objects in the sky to the position of the telescope. AudioStar needs to be aligned accurately to find objects. Before proceeding with alignment, a general explanation of AudioStar functions is helpful.

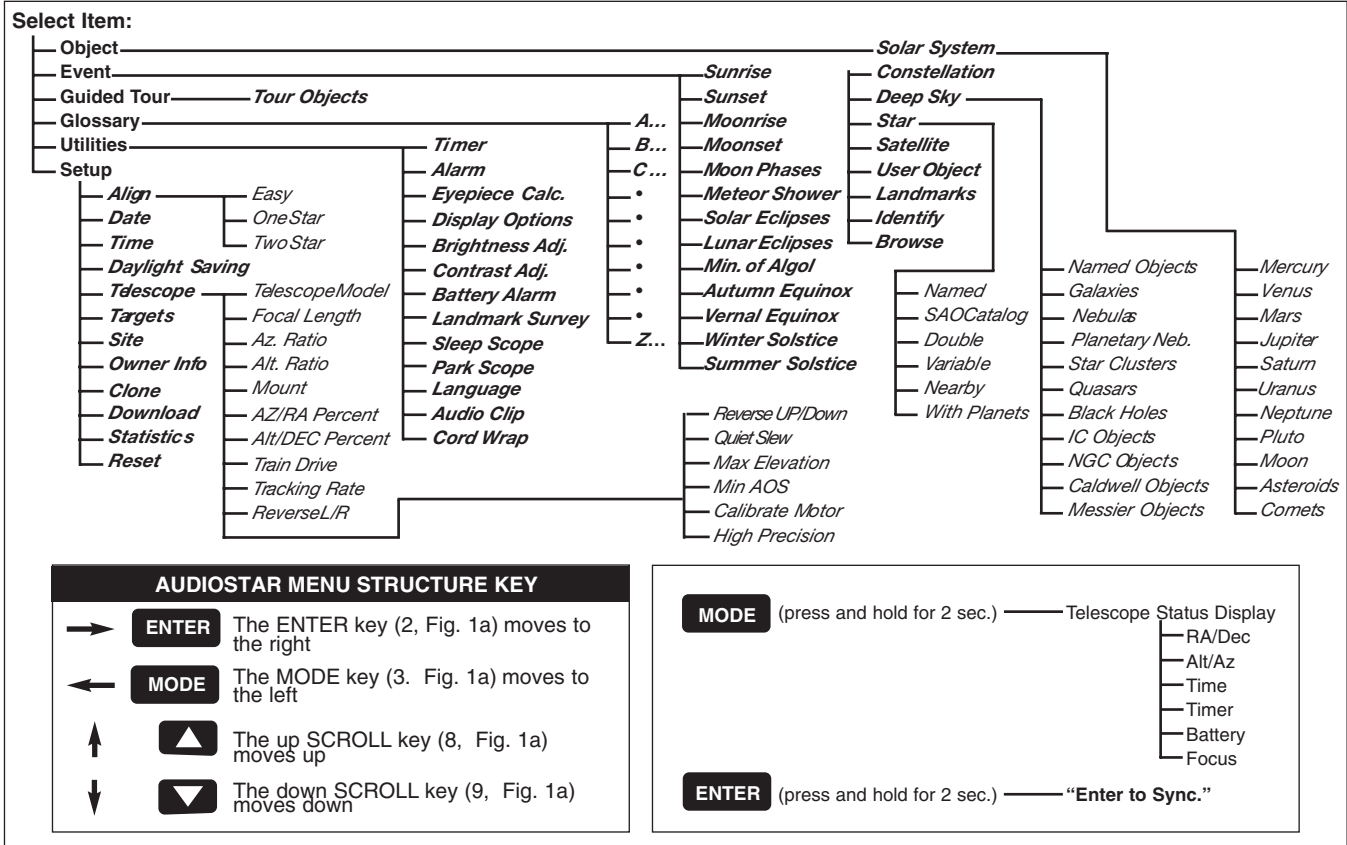
AudioStar Manual Operation

Moving the Telescope: The ARROW keys (5, Fig. 1a) move the telescope in four directions; up, down, left, and right. The speed of movement is changed by pressing a numeric key from 1 to 9, with 9 being the fastest. Speed settings remain until changed by pressing a different number. Take time now to move the telescope using the ARROW keys. Pick an object and point the telescope at it. Use a slower speed when nearing the object to accurately center it in the viewfinder and then in the eyepiece. These skills are useful when training and aligning the telescope.

Keypad and Help Function: The AudioStar keypad has 20 keys. To register a single keystroke, press and release a key firmly and briefly. Holding a key for a longer period causes a repeated key entry. This is useful for operations which require multiple keystrokes.

The Help ("?", Fig. 1a), provides advice on operations, in the form of a moving message.

LCD Screen and Hypertext: The AudioStar screen has 2 lines of 16 characters each. The top line is the current active function or menu and the bottom line is the next level of options, data, or a message.



AUDIOSTAR MENU STRUCTURE KEY

- **ENTER** The ENTER key (2, Fig. 1a) moves to the right
- ← **MODE** The MODE key (3, Fig. 1a) moves to the left
- ↑ **▲** The up SCROLL key (8, Fig. 1a) moves up
- ↓ **▼** The down SCROLL key (9, Fig. 1a) moves down

MODE (press and hold for 2 sec.) — Telescope Status Display

- RA/Dec
- Alt/Az
- Time
- Timer
- Battery
- Focus

ENTER (press and hold for 2 sec.) — “Enter to Sync.”

Fig. 2: Audiostar Primary Menu and Options

When a moving message appears the speed can be changed using the SCROLL keys. To exit the message, press MODE briefly, unless the message gives some other instruction. Sometimes embedded in a moving message is a bracketed [word], referred to as “Hypertext.” AudioStar Hypertext is similar to that used on the Internet. While a Hypertext word is visible, press ENTER, and the definition of the word appears, replacing the first message. After the new message is complete, press MODE and return to the original message. If the Hypertext is an object, like Jupiter, press GO TO while the word is visible and the telescope moves and points at the object.

AudioStar Menus

AudioStar Menu Structures: AudioStar has menus with lists of available features (see Figure 2). The menus are organized in descending levels and are seen on the AudioStar screen (1, Fig. 1a). The top line of the screen is the currently active menu category and the bottom line has the list of menu options that can be selected. Four keys are used to navigate the menus; ENTER, MODE, and both SCROLL keys. Pressing ENTER activates the item listed on the bottom line (moving down a menu level) and moves it to the top line. With the selected function on the top line, a new list of functions can then be displayed on the bottom line. To go back to the previous menu (moving up a menu level), press MODE. Pressing a SCROLL key changes the menu item visible on the bottom line. Since only one item of a menu list can be displayed on the bottom line, scrolling makes the other choices visible.

Figure 2 shows the complete AudioStar menu structure showing the paths that can be followed. From any point in the menu, pressing ENTER moves along a menu line to the right. Pressing MODE moves to the left along a menu line. Pressing the down SCROLL key moves down menu lists and pressing the up SCROLL key moves up.

Menu Example: Finding the sunset time is a good example of how to use AudioStar menus. Begin by pressing MODE several times

until the screen reads “Select Item:” on the top line and “Object” on the bottom line. Pressing MODE multiple times causes AudioStar to move back to the “Object” menu. The main menu has six choices; **Object, Event, Guided Tour, Glossary, Utilities, and Setup.** Pressing a SCROLL key makes each of these visible on the bottom line of the screen. Press a SCROLL key until the bottom line reads, “Event,” then press ENTER to select that menu. The top line now reads “Event:” and the bottom line reads, “Sunrise” (the first item in the “Event” menu). Use a SCROLL key to view the other items, finishing with “Sunset” on the bottom line. Press ENTER to start the sunset calculation which then displays the sunset time for the current day.

To leave the “Sunset” function and return to the “Event” menu, press MODE. Press MODE again to return to the main menu with the top line reading, “Select Item:” and the bottom line “Event.” Use similar sequences of the ENTER, MODE and SCROLL keys to explore other functions in the AudioStar menu. Try other events or look up words in the Glossary. Do not change any settings in the “Utilities” or “Setup” menus until they have been explained later in this manual.

Hint To avoid changing any value, press MODE which returns to the previous menu without making a change to any AudioStar settings. Also use the Help (“?”) key for an explanation of any menu.

Telescope Training

AudioStar is not able to accurately point at objects unless it is aligned and trained. Training AudioStar allows it to collect data about the gears in the telescope motor system. Once training is complete, AudioStar saves the data for later operations. Use great care in training the AudioStar system to achieve maximum accuracy.

To train AudioStar, prepare the telescope for optical viewing by removing dust covers and inserting an eyepiece. The viewfinder should also be aligned and ready for use. Select a fixed land object as a reference for the training process. Point the telescope at the selected object and center it in the eyepiece. Press MODE until the

main menu is displayed (“Select Item:”). Press a SCROLL key until “Setup” is on the bottom line, then press ENTER. With “Setup:” now on the top line, press a SCROLL key until the bottom line reads “Telescope,” then press ENTER. In the “Telescope” menu, press a SCROLL key until “Train Drive” appears on the bottom line, then press ENTER. The top line of the screen should read, “Train Drive:” and the bottom line should read “Az. Train.”

Both telescope motors need to be trained separately. Start with “Az. Train” by pressing ENTER and following the instructions given. AudioStar moves the telescope away from the centered object and asks that it be centered using only one ARROW key (all other ARROW keys are disabled). After the object is centered, press ENTER. AudioStar now moves the telescope in the other direction and ask for the object to be centered again. Center the object and press ENTER. The training for the Azimuth axis is complete.

AudioStar has returned to the “Train Drive:” menu. Select the second motor using a SCROLL key until the bottom line reads, “Alt. Train.” Press ENTER and follow instructions as before. This time, the telescope moves up and down otherwise the training sequence is the same as “Az. Train.” After completing “Alt. Train,” AudioStar is ready for alignment and operation. Remember the accuracy of this training determines how well AudioStar finds objects.

Telescope Alignment

Alignment is the method used to relate objects in the sky to the position of the telescope. AudioStar has six methods of alignment, three for Polar alignment and three for Alt/Az Alignment. The simplest method to align is “Easy Align” in the Alt/Az mode.

Easy Alignment

After you initialize the system, AudioStar displays “Easy Align.” The fastest and easiest way to start observing with AudioStar is with Easy Alignment.

During Easy Alignment, AudioStar automatically picks two alignment

stars from its database of celestial objects. It will then slew the telescope to a first alignment star. The user is asked to verify that the telescope is pointed at the chosen star and then to center the star in the eyepiece. The process is repeated with a second star to complete the alignment.

1. **Select Alignment:** “Align Easy” displays. Press ENTER.
2. **Set Home Position:** AudioStar then prompts you to set the telescope in the Alt/Az Alignment home position (see margin note and **Fig. 3**). To set your telescope in the “Alt/Az” home position:
 - Loosen the telescope’s vertical lock.
 - Level the optical tube with the horizon. Move the optical tube until the pointer points at approximately “0” on the setting circle.

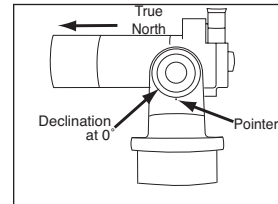


Fig. 3: Alt/Az Alignment Home Position.

Tighten the vertical lock to a “firm feel” only. Remove the 45° prism and eyepiece from the rear cell port. It may interfere with the alignment procedure. After alignment, you may replace the prism and eyepiece.

- Unlock the horizontal lock and turn the telescope horizontally until it points True North. Re-lock the horizontal lock.

Note: Irregularities in the earth’s magnetic field results in the direction of True North and Magnetic North differing from each other and this difference (called declination) will vary from location to location. As a result, your compass points to Magnetic North, which is different than True North. There are two (2) basic methods to finding True North:

Method #1: Finding True North using the North Star (Polaris):

To find True North, use the bubble level/compass and point the telescope tube towards Magnetic North. Then refer to the diagram on page 42 in your manual, which directs you to the North Star (Polaris). Looking towards Magnetic North locate the Big Dipper; follow the two stars in the bowl of the Big Dipper, as shown in diagram, to the North Star. With the tube still level, rotate it so that it points towards the North Star. Lock the horizontal lock. The tube is pointing True North and now in the Alt/Az home position.

Method #2: Finding True North using a compass adjusted for local declination:

True North and Magnetic North differ and will vary from location to location. In order to correctly compensate for these differences you will need to know the declination based on you location. Find your location on the declination map of the United States (See Figure 4). Notice the curved contour lines that are referenced with plus (+) and minus (-) values.

Notice the thicker line in the middle of the map that has a value of zero. Along this line, Magnetic North will point to True North; no compensation will be necessary. Align your telescope tube so that it matches North as indicated on the bubble level/compass.

Most of us are not so lucky and will have to compensate using the declination value for our location. For those of you that live on the left side of the thicker zero (0) value line your declination values will have positive (+) values and said to be East Declination. Those of you located to the right will have negative (-) values and said to be West Declination.

For example if you were located in San Francisco, your East Declination value would be about 14 1/2 (San Francisco is located between the 15 and 14 lines). Using this value, Magnetic North would be 14 1/2 degrees East of True North and you would align your telescope tube along this line.

If you were located in New York City, your West Declination value would be about -13 Using this value, Magnetic North would be minus (-) 13 degrees West of True North or $360^\circ - 13^\circ = 347^\circ$ and you would align your telescope tube along this line. Lock the horizontal lock. The tube is pointing True North and now in the Alt/Az home position. Press Enter



Fig. 4: The bubble level. Remove the eyepiece from the 90° holder and drop in the bubble level. Adjust the telescope tube the bubble enters the center circle of the bubble level. Line up the North - South line of the compass with you telescope tube. Move the tube until the tube points Magnetic North.

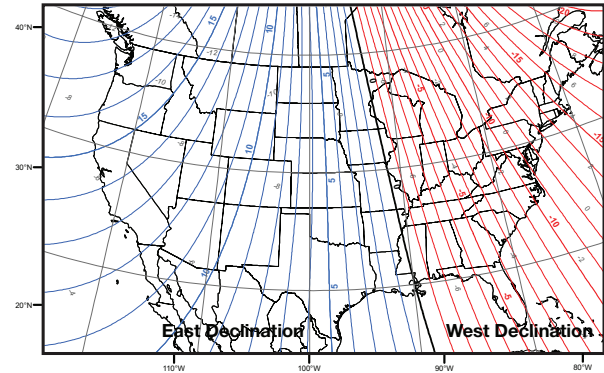


Fig. 4: Magnetic Declination – North America

- Center Alignment Stars:** The AudioStar then slews to the first star for alignment. It may not appear in the field of view in the eyepiece. The alignment star should be easily recognized and be the brightest star in the area of the sky where the telescope is pointing. Use the Arrow keys to move the telescope until the star is visible and centered in the eyepiece. Press ENTER. Repeat procedure for the second alignment star.

NOTE: AudioStar locates alignment stars based on the date, time, and location entered. The alignment stars may change from night to night. All that is required is for the observer to center the selected stars in the eyepiece when prompted.

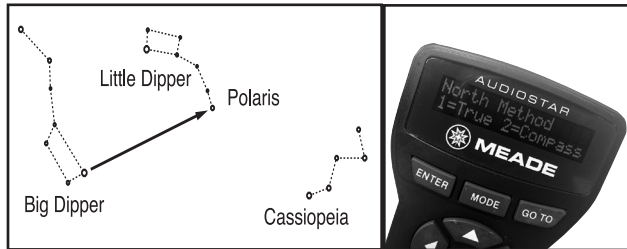


Fig 6: Locating Polaris



Fig 7: Choose North Alignment

Note: The GO TO key also allows you to perform a “spiral search.” A spiral search is useful when the telescope slews to an object, but that object is not visible in the eyepiece after the telescope finishes its search. (This sometimes occurs during an alignment procedure.) Press GO TO when the slew is finished and the telescope starts slewing in a spiral pattern at a very slow speed around the search area. Look through the eyepiece and when the object does become visible, press MODE to stop the spiral search. Then use the Arrow keys to center the object.

Finding Objects in the Sky

With AudioStar aligned, it is possible to find any visible object in the “Object” menu. Another option, is to take a Guided Tour.

Guided Tour picks the best objects available for viewing. To start a guided tour, select the “Guided Tour” function from the main menu. Use the SCROLL keys to view the list of tour objects and press ENTER to select any object of interest. When selected, the object name appears on the top line and information about the object is on the bottom line. Object information includes: astronomical coordinates, size, brightness, and more. All information can be seen using the SCROLL keys. Some objects have a moving message with a description of the object. If a moving message appears, use MODE to exit the message when completed.

To direct AudioStar to point the telescope at a selected object, press GO TO. The telescope moves at high speed toward the object. The telescope slows as it approaches the object and eventually stops and sounds a beep. The object should be visible in the eyepiece of the telescope. To see more objects in the Guided Tour, press MODE. Display a new object with the SCROLL keys and press ENTER to select it. Use this method to view any of the Guided Tour objects.

Problem If objects are not in the eyepiece after GO TO is pressed, check the viewfinder to see if it is near the center. Under high magnification, some objects may be slightly out of the field of view and need some minor manual correction using the ARROW keys.

If the object was not close to center, there are several possibilities. First, the telescope must sit on a stable surface or tripod. Second, use only the ARROW keys or GO TO key to move the telescope or alignment is lost.

Third, be sure the date, time, and site are accurately entered. Fourth, make sure the telescope axis locks are firmly engaged to prevent slippage of the internal clutch. Fifth, telescope training must be accurate. Repeat very carefully all of the steps to train the telescope. Last, the alignment procedure must be done accurately. Make sure each step is done carefully and that alignment stars are centered.

Synchronize Function: To improve the ability of AudioStar to find objects, a “sync” function is included to make minor alignment corrections. If an object is not centered in the eyepiece, press and hold ENTER for two seconds. AudioStar requests that the selected object be centered, then press ENTER again. This improves the accuracy of alignment, particularly in the region of sky immediately around the “sync” object.

Telescope Status Display: This is activated by pressing MODE for more than 2 seconds. The screen shows values related to AudioStar operation, and can be viewed by using the SCROLL keys.

The telescope can also be pointed at a particular location using the ARROW keys and watching a location display. For automatic movement of the telescope, press GO TO during a location display. AudioStar requests the destination coordinates to be entered. Enter the coordinates, then press ENTER. AudioStar moves the telescope to that location. To exit the status display, press MODE.

AudioStar Menus and Function Reference

This section discusses each of the AudioStar menus and functions (see Figure 1). To access any of the functions use the ENTER, MODE and SCROLL keys as in previous operations.

A. Object Menu Options

The “Select Item: Object” menu contains a database of objects for viewing, including astronomical, terrestrial and user-defined objects. When an object has been selected it appears on the top line of the screen. The bottom line contains information about the object which is viewed using the SCROLL keys. Press GO TO and the telescope points at the current object.

Solar System includes eight planets (Earth is not included) in order out from the Sun, followed by the Moon, asteroids, and comets.

Constellation is a database of all 88 northern and southern hemisphere constellations. When this menu option is chosen and a constellation name appears on the first line of the screen, pressing GO TO changes the second line to the name of the brightest star in the constellation. Pressing GO TO again moves the telescope to that star. Use the SCROLL keys to cycle through the stars in the constellation from brightest to dimmest.

Deep Sky is a database of objects outside our solar system such as nebulae, star clusters, galaxies, and quasars.

Star is a database of stars by different categories such as named, double, variable, or nearby.

Satellite is a database of Earth-orbiting objects such as the International Space Station, the Hubble Space Telescope, and other satellites. *This feature is recommended for advanced users only since acquiring and tracking a fast moving object can be complicated.* Additionally, AudioStar needs fresh satellite data or it is unable to accurately predict the appearance time and location. The Meade web site (www.meade.com) provides updated information on orbits and complete instructions on how to use this feature.

User Objects allows the user to define deep-sky objects of interest that are not currently in the AudioStar database.

Landmarks stores terrestrial points of interest. *To enter a new landmark the telescope must be located and aligned exactly as when other landmarks were entered.* “Sync” on a reference landmark, then move the telescope to the new landmark and enter it into the AudioStar database.

Identify is used when an object is placed in the telescope eyepiece and AudioStar identifies the object being observed.

B. Event Menu Options

The “Select Item: Event” menu provides access to dates and times of astronomical events. Included are:

- **Sunrise** and **Sunset** displays the time that the Sun rises or sets on the current date.
- **Moonrise** and **Moonset** displays the time that the Moon rises or sets on the current date.
- **Moon Phases** displays the date and time of Full, New, 1st Qtr., and 3rd Qtr. Moon.
- **Meteor Showers** provides information about upcoming meteor showers, including dates of the shower and when it is scheduled to reach maximum.
- **Solar Eclipse** lists upcoming Solar Eclipses, including the date and type of eclipse along with the location and time of the first and last contacts of the lunar shadow across the Earth.
- **Lunar Eclipse** lists upcoming Lunar Eclipses.
- **Min. (Minimum) of Algol** is the minimum brightness of the eclipsing binary star system, Algol. Every 2.8 days during a 10 hour period, Algol undergoes a major change in magnitude as one of the two stars passes behind the other. The combined magnitude of the two stars dips from +2.1 to a minimum of +3.4 halfway through the eclipse as the second star is hidden.
- **Autumn** and **Vernal Equinox** calculates fall or spring equinox.

- **Winter** and **Summer Solstice** calculates the winter or summer solstice for the current year.

C. Glossary Menu Options

The “Select Item: Glossary” menu provides an alphabetical listing of definitions and descriptions for common astronomical terms and AudioStar functions. Press ENTER to access the Glossary database. Use the SCROLL keys to scroll through the alphabet. Press ENTER on the desired letter. Scroll to the desired entry, then press ENTER to read the description.

D. Utilities Menu Options

The “Select Item: Utilities” menu provides access to several extra features within AudioStar, including a countdown timer and an alarm. Specific Utilities options include:

Timer selects a countdown timer. This feature is useful for things such as astrophotography and in tracking satellites. To use the Timer, press ENTER, then choose “Set” or “Start/Stop.”

Alarm selects a time for an alarm signal as a reminder function. To use the Alarm, press ENTER, then choose “Set” or “Start/Stop.”

Eyepiece Calc calculates information about an eyepiece and how it functions for the specific telescope to which AudioStar is connected.

Brightness Adj uses the scroll keys to adjust the brightness of the screen. When complete, press ENTER.

Contrast Adj uses the scroll keys to adjust the contrast of the screen. This feature is usually only required in very cold weather. When complete, press ENTER.

Battery Alarm sounds when the batteries are nearing replacement. If not desired, press the scroll key to change the screen from YES to NO. Press ENTER and the beep no longer sounds.

Landmark Survey automatically moves the telescope to all user-defined landmarks with a pause at each location. Use the ARROW keys to manually locate the first landmark. Press and hold ENTER for 2 seconds; the message “ENTER to Sync.” appears. Press

ENTER and this landmark is synchronized with all other landmarks.

Important Note: *To accomplish a landmark survey, all landmarks must have been entered into the AudioStar database from the same reference point (i.e., the telescope must be in the exact same location and mounted and aligned in the exact same way).*

Sleep Scope is a power saving option that shuts down AudioStar and the telescope *without forgetting its alignment*. Press ENTER to activate the Sleep function and AudioStar goes dark but the internal clock keeps running. Press any key, except ENTER, to re-activate.

Language: Select the English language or other pre-loaded language and AudioStar will display text and audio descriptions in the selected language. Pre-loaded languages cannot be changed.

Audio Clip: Select from Automatic or On Demand. The Automatic setting will automatically play the object audio when a night sky object is selected on the AudioStar. The On Demand feature requires the user to press the “?” key once a night sky object is selected. Pressing the “?” key will then play the audio presentations for the selected object.

Park Scope is designed for a telescope that is not moved between observing sessions. Align the telescope one time, then use this function to park the telescope. Next time it is powered up, enter the correct date and time — *no alignment is required*. Pressing ENTER causes the telescope to move to its pre-determined Park position. Once parked, the screen prompts to turn off power.

E. Setup Menu Options

The “Select Item: Setup” category primary function is to align the telescope. However, there are numerous other features available within “Setup.” These options are:

Align changes the alignment routine and North method.

Date changes the date currently used by AudioStar.

Time changes the time entered into AudioStar. *Setting the correct time is critical for AudioStar to properly calculate locations*

and events.

Daylight Saving is used to set the status of Daylight Savings time.

Telescope accesses the telescope options, including:

- **Telescope Model:** Selects the model of telescope connected.
- **Focal Length:** Changes the focal length of the telescope by typing in new numbers, then press ENTER.
- **Az Ratio** and **Alt Ratio:** The Az (Azimuth) ratio and Alt (Altitude) ratio refers to the gears installed in the telescope motors. *Do not alter these numbers.*
- **Mount:** Choose between *Alt/Az* mount or *Polar* Mount. A polar mount requires that the telescope be *physically* polar aligned.
- **Train Drive:** Trains the telescope motor drive to locate objects with more precision. This function is very important to accomplish the first time AudioStar is connected to a telescope.
- **Tracking Rate:** Changes the speed at which the telescope tracks targets in the sky. “Sidereal” is the rate that stars move across the sky due to the Earth’s rotation, “Lunar” is the rate that the Moon moves, and “Custom” allows entry of user-defined tracking rates.
- **Reverse L/R:** Reverses the functions of the left and right arrows (*i.e., the right key moves the telescope to the left*).
- **Reverse UP/DOWN:** Reverses the functions of the up and down arrows (*i.e., the up key moves the telescope down*).

NOTE: The reverse functions above are useful for observers in the southern hemisphere (i.e., South America, Australia, Africa, etc.)

- **Calibrate Motor:** If the telescope motors appear to have any sort of problem, use this option to retest the motors before doing a “Reset.” This option is also used if AudioStar is moved between telescopes to match AudioStar to the telescope.
- **High Precision:** If High Precision is turned on, when looking

for a faint celestial object (*i.e.*, a nebula or galaxy) AudioStar slews to a nearby bright star and requests “ENTER to Sync.” Center the star in the eyepiece, then press ENTER. The telescope then slews to the originally requested object.

Targets switches between *Astronomical* targets (motor drive on) and *Terrestrial* targets (motor drive off).

Site allows access to the Site options including:

- **Select:** Displays the current site chosen during initialization. Use the scroll keys to cycle through all available sites.
- **Add:** Adds a new observing site.
- **Delete:** Deletes a stored site.
- **Edit:** Edits a selected site, including: the name, latitude, longitude, and time zone.

Owner Info accesses the owner information menu, including the owner’s name and address.

Clone uploads information from one AudioStar to another. Three options are available:

- **Catalogs:** Sends only the user-defined object information, such as new satellite or comet information, to another AudioStar.
- **Software:** Sends only the basic AudioStar software. This is useful if one user has downloaded a new version of the AudioStar software from the Meade website (www.meade.com) and wants to pass this new software along to friends.
- **All:** Everything is sent to another AudioStar.

Download transfers information from a personal computer or another AudioStar as described above in **Clone**. **Statistics** provides basic statistical data about AudioStar, including “Characters Free” and “Version.”

Reset completely resets AudioStar. AudioStar requires initialization again before proceeding with observations.

Meade Customer Service

If you have a question concerning your AudioStar Handbox, call the Meade Instruments Customer Service Department at (800) 626-3233. Customer Service hours are 7:00 AM to 4:00 PM, Pacific Time, Monday through Friday. In the unlikely event that your AudioStar Handbox requires factory servicing or repairs, call the Meade Customer Service Department first, before returning the AudioStar Handbox to the factory, giving full particulars as to the nature of the problem, as well as your name, address and daytime telephone number. The great majority of servicing issues can be resolved by telephone, avoiding return of the telescope to the factory.



MEADE LIMITED WARRANTY

Every Meade telescope, spotting scope, and telescope accessory is warranted by Meade Instruments Corporation ("Meade") to be free of defects in materials and workmanship for a period of ONE YEAR from the date of original purchase in the U.S.A. and Canada. Meade will repair or replace a product, or part thereof, found by Meade to be defective, provided the defective part is returned to Meade, freight-prepaid, with proof of purchase. This warranty applies to the original purchaser only and is non-transferable. Meade products purchased outside North America are not included in this warranty, but are covered under separate warranties issued by Meade international distributors.

RG Number Required: Prior to the return of any product or part, a Return Goods Authorization (RGA) number **must** be obtained from Meade by writing, or by calling (949) 451-1450. Each returned part or product must include a written statement detailing the nature of the claimed defect, as well as the owner's name, address, and phone number.

This warranty is not valid in cases where the product has been abused or mishandled, where unauthorized repairs have been attempted or performed, or where depreciation of the product is due to normal wear-and-tear. Meade specifically disclaims special, indirect, or consequential damages or lost profit which may result from a breach of this warranty. Any implied warranties which can not be disclaimed are hereby limited to a term of one year from the date of original retail purchase.

This warranty gives you specific rights. You may have other rights which vary from state to state.

Meade reserves the right to change product specifications or to discontinue products without notice.

This warranty supersedes all previous Meade product warranties.



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INSTRUMENTS

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FCC NOTICE

This equipment has been tested and found to comply with the limits of a CLASS B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that of the receiver.
- Consult the dealer or an experienced radio/television technician.

Any changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this equipment.

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