

Meade 16” LX200 Open House Operations Guide – Long Version

1 Getting Started

1.1 Fans

First, you need to open the dome up so the telescope can get acclimatized to the surroundings. To do this, turn on the switch for the fans, located on the wall to the right after entering. This will make quite a ruckus and you’ll want to turn it off once you feel the air temperature has equalized. You will also want to open the windows by moving the screen, twisting the latch and pushing outward.

1.2 Dome Slit

Next, you’ll need to open the dome slit, which is only possible if the slit is oriented toward the south. If you aren’t sure which direction is south, look at the telescope pier. It is a polar mount, so the pier is angled toward the north. There are two cables which control the dome: one has a switch that controls the left/right rotation, the other switch allows you to open and close the slit. The slit control cable should be disconnected. In order to open the dome, connect the male and female ends of this cable and turn the switch to open the dome. Note that the ghetto design of this dome forces you to choose whether you want the zenith or the horizon available BEFORE you open. If you just flip the switch to open the dome, zenith will not be available to you. In order to view the zenith, you must climb a ladder at the slit and pull the small chain which releases the lower section of the slit. With the chain pulled, begin to open the dome. After just a few seconds, you can release the chain. Once the dome is open, do not forget to DISCONNECT THE POWER CORD for slit control. Remove the tarp from the telescope and place in an out of the way location.

1.3 Telescope Power and Telescope Mirrors

Only when the dome is open may you proceed. There is a possibility that stuff may drift down from the dome while it is opening. This stuff falling on the mirror would be bad, so avoid that possibility. First, you’ll need to turn on the main power to this dome by turning on the power strip on the floor at the base of the telescope. Next, turn on the power to the Meade itself by flipping the on/off switch on the Meade’s main panel. You should hear some beeping, the control pad will light up, and you should be able to hear the faint sound of the telescope gears tracking.

Now you’re ready to uncover the telescope mirror. Use the small step ladder to remove the main mirror cover from the telescope. Also remove the covers from the front and back ends of the finder scope. Place these to the side and be sure not to lose them!

2 Controlling the Telescope

After about 10 seconds, the hand paddle should display a menu with options of ‘Telescope’ and ‘Object Library’. We will assume all the settings for the telescope location, alignment, etc are correct. Hitting the ‘Mode’ button should cycle you through different options. Stop when you see a display of the current RA and DEC. Note that these values are more than likely incorrect. We will remedy that shortly.

Slewing the telescope is rather simple - simply press the N,S,E,W keys to move the telescope in the corresponding direction. The telescope does have 4 different slew speeds: SLEW, FIND, CENTER, and GUIDE. SLEW is the fastest speed, while GUIDE is, of course, extremely slow. By default, the telescope should boot up at SLEW speed. To change the speed, press the numerical key which corresponds to the speed on the paddle. A small light should indicate at which speed you are currently set. Note, 7 for SLEW, 4 for FIND, 1 for CENTER, and 0 for GUIDE. For large slews, use the SLEW speed. For small corrections in the eyepiece, use the GUIDE speed.

You could operate the telescope by manually slewing to each object at this point, but it is much easier to let the telescope do the work for you. In order for this to work, you must let the telescope know where it is pointing in the sky. Find a bright, well-known star overhead, like Arcturus or Vega. Slew to the object using the hand paddle, and center the object in the eyepiece. Once it is centered, look up the star's number in the Meade manual or on the attached sheet. (Arcturus = 147, Vega = 214). The '6' key is also labeled 'Star'. Press this key, then enter the star number of the object you are pointed at. Press 'Enter' once, and the hand paddle will display information on the object, like its name and magnitude. Now hold the 'Enter' key until the hand paddle beeps and the display reads, 'Coordinates Matched'. At this point, the telescope know where it is in the sky and should be able to accurately slew to any object you tell it.

3 Objects to Observe

Assuming you have a list of objects you would like to look at, it is quite easy to get to them. Notice that the hand paddle has buttons labeled 'M' (9 key), 'Star' (6 key), and 'CNGC' (3 key). 'M' corresponds to the Messier object list, 'Star' corresponds to a list of bright stars in the Meade's catalog, and 'CNGC' stands for the Computerized New General Catalog. A list of all these objects can be found in the Meade manual which should be located inside the dome. So, for example, if you want the telescope to go to M32, simply hit the 'M' key, type '32', and hit 'Enter'. The paddle should display information on the object. Now hit 'GOTO' and the telescope will slew directly to that object. It may not be centered exactly in the eyepiece, but it should at least be visible in the finder scope.

4 Oddities You Need to Know

There have been many reports of odd behavior with this telescope, but most of those can be attributed to user error. If you find the telescope is slewing in odd directions, not tracking well, or unable to locate an object even after a 1-star alignment, chances are someone has put the telescope in ALT-AZ mode. The telescope should always be set to POLAR, and this option can be set under the 'Telescope' menu. See the Meade manual for more info. If the telescope does not even come on, please make sure that all power cords are plugged in and that the power strip is on. If the telescope still doesn't turn on, a fuse has probably blown and you'll need to notify someone who can crack open the control panel and replace the fuse.

The focus knob is located on the back end of the telescope near the eyepiece. Rotating the knob left or right should allow you to bring the telescope into focus. There is some play in the screws that turn the knob, so it may take quite a few turns.

5 Closing Down

This should happen in the reverse order in which you opened. Replace the mirror cover and put the telescope back in the home position, pointed toward the zenith. Remember that we don't want junk from the dome slit falling on the mirror. Turn off telescope power and the power strip. You are now done with the telescope. Rotate the dome around to south. Connect the power cables for the slit control and close the dome. When the dome is closed, be sure to DISCONNECT the power cable for the slit. Replace the tarp over the telescope - we have had leaking issues with this dome in the past. Don't forget to close the windows!