



Meade Instruments Corporation

16542 MILLIKAN AVENUE, IRVINE, CALIFORNIA 92714-5032 USA (714) 756-2291
FAX: (714) 756-1450, (714) 756-1504

Magellan II LX50 Addendum

I. Alignment

Selection of alignment stars is important to the overall success of the alignment. The operator should select stars which are not near the pole, this is due to trigonometric math function behavior. The operator should also select stars that are not close together but at least separated by 25° . Finally, do not select a star between the north celestial pole and the north horizon (or if you live in the southern hemisphere, between the south celestial pole and the southern horizon).

II. Magellan II Accuracy

The Magellan II Telescope Computer System is designed to allow users to find deep sky objects with ease and accuracy. There are, however, several important considerations which can detract from the accuracy of the Magellan system. Each of these issues are as important to repeatable and accurate operation as the alignment procedures described in the User Guide and are typically addressed at the time of installation and will provide a continuing benefit to the system.

The importance of these adjustments depends on how demanding you are as a user. For the casual observer, you may find that your equipment, as manufactured and assembled by you, gives the pointing accuracy's you expect. If you demand very repeatable and highly accurate results, you can obtain them (within the tolerances of the encoders) by paying very close attention to the cautionary items discussed and your alignment during any given session.

A. General Adjustments

Several issues which may seem obvious are very important, for example, the telescope must be rigid for the Magellan system to operate properly. The frame must be assembled with all bolts secure so that no shifting movements between components result while operating the telescope.

The legs of the tripod should be securely tightened and must be operated on stable hard ground. Any shifting, tilting or other movements of the tripod after alignment will induce inaccuracy's.

Smooth operation of the axes is also desirable and will aid the observer in finding objects. The pivot points should turn easily and in small amounts without

sticking or resisting. You must avoid making rapid movements even short ones which can cause Magellan to miss encoder counts and lose alignment. Smooth, even movements are recommended when slewing between objects.

B. Troubleshooting

If you have paid careful attention to the items discussed in section A. and are still having pointing accuracy problems check these additional items and also double check section A.

1. Check your battery. A weak battery may still operate the Magellan computer system but cause inaccurate encoder position sensing.

2. Check your encoders to be sure they are secured and operating properly. You can do this by cycling the Magellan power (turn it off and then on again). Press the mode key once and the display will show the raw encoder counts. Move both axes of the telescope to confirm that the encoders are detecting the movement. Select a reference position for the telescope and note the encoder values, move the telescope randomly to various new locations and then back to the original reference and note that the value should again read the same as the original value. If the encoder value is different, reexamine the installation procedures and make sure that all electrical plugs are seated, all screws tight and that no slipping occurs between the encoders, shafts and brackets.

III. Serial Interface

A special power saving feature has been added to the Magellan to permit extended battery life for those who do not use the Magellan with the serial interface. Magellan automatically turns off the serial interface and invokes a special low power mode during normal power on sequences. In this power conservation mode, Magellan conserves power by "sleeping" the processor and turning off other functions to reduce power to minimum. In the power conservation mode the serial interface is disabled and will not respond to commands from Epoch 2000.

If you wish to enable the serial interface to use Epoch 2000, you will need to specifically indicate this to Magellan. This is done by pressing the mode key until the telescope menu is displayed (begins with ">1)Obj. Library"). Scroll to item 6 by pressing the NEXT/PREV

key (display reads ">8)Serial Off"). The serial function can then be turned on by holding the ENTER key for more than 1 second and releasing. When the display reads "Serial On", Magellan will now operate with Epoch 2000. The serial interface function can be toggled between the "on" and "off" states by using the same sequence of key strokes as described above.

To operate properly with the Magellan II handbox, you will need to change the default serial interface settings of the Epoch 2000 software. The proper settings for the Magellan II serial interface are;

300 Baud
8 Data bits
No Parity bit
1 Stop bit

IV. Encoder Ratio

Your LX50 Magellan II Azimuth encoder is geared such that it gives more resolution than is normally available in other Magellan configurations. This requires that the Magellan encoder ratios be adjusted. This is typically done at the factory but should be checked by the user and changed if necessary. The encoder menu is item 4 in the Telescope Mode and is described on page 12 of the User Guide. Scroll to this function and press ENTER. The encoder ratios will be displayed and are correct if they read as follows;

El Ratio:+ 1 .0000
Az Ratio:-1.7142

If your Magellan does not show these values, you will need to enter the proper numbers and sign. In the current mode, the cursor is blinking on the digit that can be changed. You can move the cursor using the W (WEST) or E (EAST) keys or by pressing a digit. The sign can be changed by pressing the PREV or NEXT keys while the cursor is positioned on the sign. After the number is properly input, press the ENTER key to complete the number entry.

For the Az axis the number entered should be -1.7143. You will notice that after the new value for Az is entered, the next time the display is viewed the number will read -1.7142. This is because the floating point math rounds the previous input for display and typically gives that next smaller ratio. This difference should be of no concern to the operator and will not effect the accuracy of the system.