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Installation Guide:
GEOSAT*pro* GS120 DiSEqC Motorized Satellite Dish Mover

Items needed for installation:

1. DiSEqC / USALS Compatible GEOSATpro GS120 Motor or Similar
2. Fortec Star Mercury II MPEG2 DVB Satellite Receiver with USALS
3. Assembled 76cm – 1.2 Meter Dish
4. LNBF (KU-Band Standard)
5. 5’ Coax Jumper
6. Portable TV with cables for connecting to the satellite receiver output

Satellite aiming Calculator is available at: http://www.geosatfinder.com

Available channels and broadcaster information can be found at: http://www.lyngsat.com

What to learn more about Free to Air Satellite and share your FTA experience with a helpful and friendly group? Visit: http://www.satelliteguys.us

1. Assemble the motor using the motor assembly manual. Securely tighten the bolt that attaches the post to the motor with an Allen wrench. A loose bolt will cause the dish to slip out of position.

Place Motor Post Through Top of Dish Post Clamp and Secure

2. Mount the assembled dish onto the motor post. Place the dish post clamp top bolt through the elevation bracket then through the top alignment hole in the motor post. Securely tighten the bolt.

3. Determine the Longitude and Latitude for the installation location. If your system was supplied with **GEOSAT**Finder aiming coordinates, your location coordinates are printed near the top of the sheet or use a GPS unit to locate the install position coordinates. Longitude references the East / West location and Latitude the North / South.

4. Install a perfectly plumb, level and stable post. If the post is not exactly level the dish will not track the satellite arc. Assemble the motor and mount on a With the motor in the 0 position rotate the motor assembly on the mounting post towards magnetically corrected South. Find true south at http://www.geosatfinder.com or by adding or subtracting the magnetic declination for your area to the compass reading. Example: Sacramento, CA, the magnetic declination is -15.6 subtracted from 180 degrees equals 164.4. This is not a critical step, but it will be easier to locate the first satellite if the motor is first roughly aimed.

Motor Mount Latitude Scale = Install Location Latitude

5. Set the motor mount latitude scale to the latitude of the installation location. Securely tighten the two latitude adjustment bolts as this setting should net need to be readjusted.

Dish Elevation Angle

6. Set the Dish Elevation Angle on the dish elevation bracket using the Dish Angle Table on page 6 of the GeoSat GS120 Motor Manual. The dish elevation angle will be between 20 and 30 degrees. Loosely secure the two dish elevation bolts, as the elevation may need to be adjusted for the dish to properly track the satellite arc.

LNBF Set to 12 O'clock Position

7. Set LNBF rotation to 12 o'clock position. The motor will rotate the lnbf and dish as it moves through satellite positions.

Carefully Route and Secure Coax Cables

8. Connect a coax cable from the LNBF to the motor port labeled “To LNB”.
9. Clear all obstructions to permit dish movement. Always keep the area clear when programming and moving the motorized dish.
10. **Warning: The dish may suddenly move when connected to the receiver!** Unplug the receiver from the electrical outlet. Connect a short temporary coax cable between the motor “To Receiver” and the receiver “Digital - LNB IN” ports. Route and secure all coax cables in a manner to avoid interference and / or damage to the cables during motor movement.
11. Stand clear of the motorized dish and plug the receiver into an electrical outlet.
12. Verify the green LED power indicator status light is lit on the motor. Please consult with the motor operation manual for description of modes of the status indicator light.
13. To verify that the dish will clear any obstacles, press and hold the manual movement button on the motor until shortly before the motor reaches an obstacle or the West mechanical limit of the motor. Press the button twice within one second and hold to drive the motor to an obstruction or limit to the East. If the dish cannot be installed in a location free of obstacles, please consult with the GS120 Operation Manual on adjusting the mechanical limits for motor travel or refer to the Fortec Star Mercury II Owners Manual on setting electronic East and West Limits. Failure to prevent the dish from contacting objects will result in damage to the dish and motor.

Fortec Star Mercury II Receiver Set-up and Operation

A. Press **MENU**, **RIGHT ARROW** to **INSTALLATION** Menu Screen and select **ANTENNA SETUP**, Press **OK**

B. Select **SATELLITE** and choose **IA5 Ku 97W** by pressing **LEFT** or **RIGHT ARROW**

C. Select **LNB TYPE** and set to **LNB-10750** (Standard) by pressing **LEFT** or **RIGHT ARROW**

D. Select **POSITIONER** and set to **USALS** by pressing **LEFT** or **RIGHT ARROW**, Press **OK**

E. Select **LONGITUDE** and enter your installation location Longitude using the **Numeric Keys** Use the **RIGHT ARROW** to select if the location is entered as **EAST** or **WEST** Longitude (North American coordinates are entered as West). Example Sacramento, CA enter 121.2W.

F. Select **LATITUDE** and use the **Numeric Keys** to enter the install location Latitude. Use the **RIGHT ARROW** to select if the location is entered as **NORTH** or **SOUTH** (North American coordinates are entered as North). Example: Sacramento, CA enter 38.5N

G. Press **EXIT**. The dish will rotate to the IA5 satellite position based on the calculated values.

H. Select **TRANSPONDER** and press the **RIGHT ARROW** to select an Active Transponder (example: **12177 V 23.000**)

I. Slightly loosen the motor on the mounting mast and rotate the motor assembly East or West on the post in very small movements while observing the **Signal Quality** meter. If a Signal Quality reading cannot be obtained or if the Quality is low or erratic, raise or lower the Satellite Dish Elevation by a degree and repeat the slow pan left or right rotation. Once the satellite is located, the Signal Quality reading will be displayed. The Fortec Star Mercury displays reliable programming if the Signal Quality is at least 50%. The higher the Signal Quality reading, the more reliable reception. Transponder 12177 should be 70% or better.

J. Press the **GREEN "ZOOM" KEY** to Power Scan for all available Free TV and Radio channels on the IA5 Ku satellite.

K. A few minutes later all satellite channels found and an on-screen prompt will ask,"**Do You Want to Save?**" Press the **RIGHT ARROW** to select **YES** and Press **OK**.

To program additional satellites enter the MENU, Select ANTENNA SETUP and chose a second satellite from the antenna setup list (AMC4 101W). Set the LNB type to LNB-10750. Activate USALS for the POSTIONER setting to drive the motor automatically to satellite position (AMC4). Set TRANSPONDER to an active frequency (11822 H 5700). Once the dish has automatically moved into position you may need to slightly adjust the motor azimuth (left / right rotation) on the mounting post and/or adjust the dish elevation to peak the Signal Quality.

Press the GREEN "ZOOM" KEY to Power Scan for all available Free TV and Radio channels on the AMC4 Ku satellite. The receiver will automatically scan the satellite for new transponder frequencies then identify the available free TV and radio channels. When completed, an on-screen prompt will ask,"Do You Want to Save?" Press the RIGHT ARROW to select YES and Press OK. Now that multiple satellites are programmed, when the satellite channel is changed on the receiver, the motor will automatically move the dish to the correct satellite location and the selected channel will appear.

To program additional satellites, select a satellite from the Satellite Name list (preferably on the opposite end of the arc), set the LNB type, activate USALS and select an active transponder frequency. See http://www.lyngsat.com for a list of satellites, transponders and available free channels. Once the dish has moved into position, verify that the Signal Quality is peaked. It may be necessary to slightly adjust the motor azimuth (rotation) on the mounting mast and/or the dish elevation to peak the Signal Quality. Power Scan the satellite for available channels. Repeat for each available satellite. Move the dish back to a channel from the first satellite and verify good signal quality. If the reading has degraded you may need to fine-tune the motor azimuth setting and/or the dish elevation settings to reflect high quality readings between the multiple satellite locations. If the post has been installed level and plumb, the latitude adjustment on the side of the motor should not need to be adjusted.