

SG6000

DiSEqC Motor

User Manual

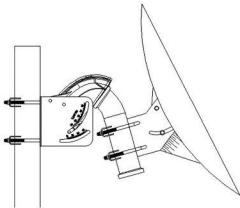


Figure 1

2. Setting Elevation Angle of the Motor.

⚡⚡ Adjust the motor elevation angle via the inclinometer or the Elevation / Latitude scale on both sides of the Motor.

3. Setting Angle of the Dish.

⚡⚡ Attach the Dish onto the motor. The centerline on the tube of the motor can help to mount the Dish on the center. Find the Declination Angle by the attached ANGLE TABLE.

⚡⚡ Set the Declination Angle by the scale on the antenna dish. The reading on the Dish scale should be: **40°-DECLINATION ANGLE**

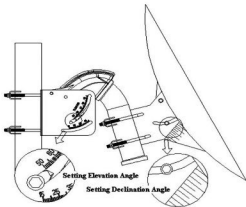


Figure 4

4. Drive the antenna east and west via the manual button on the bottom of the Motor or via Receiver to check if the reception arc is correct. If not, adjust the direction, elevation, and declination angle to find the best reception.

p.s. Please connect the Motor to receiver via coaxial cable to get the power. The Green LED will light on if the power from the receiver is on.

II. Quick Installation (A receiver with Go to X Function is recommended):

1. Set Elevation Angle of the motor:

⚡⚡ According to the Latitude of your location, set the elevation angle of the motor. There is also a Latitude scale on the other side of the motor.

2. Mount the Dish:

⚡⚡ Mount the Dish onto the motor. The centerline on the tube of the motor can help to mount the Dish on the center.

Find the Declination Angle by the attached ANGLE TABLE.

⚡⚡ Set the Declination Angle by the scale on the antenna dish. The reading on the Dish scale should be: **40°-DECLINATION ANGLE**

Please refer to the Figure 4.

3. Drive the motor to the position for a favorite satellite:

According to your Longitude and the position of the wanted satellite, drive the motor to the right position. For example, a user in Berlin (Longitude is 13.3°E) wants to aim the **HELLAS SAT 2** (39.0°E). Just drive the motor to 25.7°E (=39.0-13.3) via the manual button.

If the receiver has **Go to X** function, just input the longitude and wanted satellite, the receiver can calculate and drive the motor to right angle automatically.

4. Aim the Satellite:

Move the whole unit around the pole to find the strongest signal from the wanted satellite.

Tighten everything and the installation is finished.

◆ CABLE CONNECTION

Connect the Motor via the coaxial cable (RG-6/U is recommended) as the following diagram.

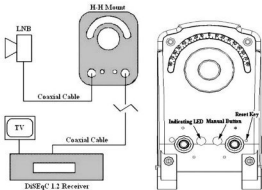


Figure 5

◆ MANUAL BUTTON

Drive the Motor East / West via only one Manual Button on the bottom of the Motor

1. West: Press once and keep pressing.
2. East: Press twice within 0.5 second and then keep pressing.
3. West Fine-tune: Press Once and release immediately for one step West.
4. East Fine-tune: Press Twice and then release the button for one step East.

◆ INDICATION LED

The LED on the bottom of the Motor can show the following information:

| Color | Status | Indication |
|--------|--------|--|
| Green | On | Power on; Standby Mode |
| Orange | Blink | Receiving DISEqC 1.2 Commands/Reset Mode |
| Orange | ON | Error Message: Over Current/Reach Hardware Limits... |

◆ HARDWARE RESET

1. Make sure the power from the receiver is turn -on. The indicating LED lights on.
2. Drive the motor to 0° via the manual button.
3. Probe the RESET button behind the bottom of the motor via a thin rod for 2 seconds. The LED blinks in Orange Color. The reset process is OK while the LED is green. The preset Satellite Table will be re-install and the current position will be set as 0°. Please cut off the power for the motor first before any operation.

Compatible with DiSEqC 1.2 Receivers
East/West Hardware Limits
One Coaxial Cable for Controlling
Indicating LED for Easy Trouble Shooting
Manual Button for Easy Installation
SMT Processed PCB
Compact, Powerful and Quiet
For Dish up to 1.2M
Go to X Function



◆ DiSEqC 1.2 OPERATION

The Motor is designed for DiSEqC 1.2 Receivers. The commands on the receivers might be different, but similar. Please refer to the manual of the receiver.

1. Go East/West: Drive the dish to East/West.
2. Fine Tune East/West: Drive the dish East/West for one step.
3. Store nn: Store Satellites Position nn (01~60).
4. Go to nn: Drive Motor to Satellite Position nn (01~60).
5. East/West Limits: Set software East/West limits.
6. Limit Off: Disable the software limits.

7. Go to 0°: Drive the Motor to 0° as a reference point.

8. Re-synchronize/Shift:

a) Drive the motor to a position by Go to command. Like P03.

b) Drive the motor East/West to a better position.

c) Send Re-synchronize commands to the motor. The P03 will be shifted to the new position. All the other Satellite positions are also changed.

d) If step a) is skipped, the P01 will be shifted to the new position.



Figure 6

9. Go to X Function:

- e) This function only works with receivers which have go to x function.
- f) It can drive the motor to exact $x.x^\circ$ East or West in relative to the 0 position of the motor. (For example, 15.2° East on the bottom of the motor.)
- g) Just input the longitude, some receivers can drive the antenna to focus on the right satellites automatically

◆ TROUBLESHOOTING

| Symptoms | Check points |
|--|--|
| The Manual Button doesn't work | <ol style="list-style-type: none">1. Make sure the power of receiver is on and the indication LED on the bottom of the motor lights on.2. Check every device between receiver and motor. |
| The Manual Button can only drive the motor toward West | For East movement: Press the manual button twice within 1 second or shorter. |
| The Motor doesn't work | <ol style="list-style-type: none">1. Make sure all cables and power are well connected. The LED on the bottom lights on.2. Make sure the motor is not blocked by the software limits. Try to use the manual button, which is only limited by hardware limits.3. Check if the receiver supports DiSEqC 1.2 and if the DiSEqC 1.2 system has been enabled. |

The Motor stops at a certain position and can't go further.

1. Disable the software limits and drive the motor again.
2. Check if it's stopped by the hardware limit sliders.
3. Make sure the Motor or antenna is not interfered with any other item.

The Motor runs discontinuously

1. Make sure the antenna is not too heavy or too large. The maximum size is 1.2 m.
2. Check if the cable quality is good enough. Try to use a better RG-6/U cable.
3. Check if the output power of the receiver is less than 350mA.

The Motor runs sometimes fast and sometimes slowly.

The speed of the Motor is according to the output voltage (13/18V) of the receiver. Vertical=13V=slow
Horizontal=18V=fast

All satellite positions are not correct.

1. Go to One satellite position via receiver. Wait for about 30 seconds until the motor stops.
 2. Drive the antenna East or West until the reception of this satellite is clear.
 3. Use "Re-calculate" Function to correct position via receiver. Or use Go to 0 position Function to go to 0 degree as a reference point. The Motor runs but stops somehow immediately.
- This could be caused by a loosen

The Motor runs but stops somehow immediately

This could be caused by a loosen magnet on the rear end of the DC motor inside. Please contact your vendor for repair.

The Motor doesn't make any movement, but clicks from inside of the motor can be heard

1. Check if the dish is too heavy. The maximum size of the antenna is 1.2 m.
2. The DC motor inside is broken. Please contact your vendor for repair.



ELEVATION AND DECLINATION ANGLE TABLE

| Your Site Latitude | Elevation Angle | Declination Angle |
|-----------------------|--------------------|----------------------|
| 0 | 90 | 0.000 |
| 1 | 89 | 0.178 |
| 2 | 88 | 0.355 |
| 3 | 87 | 0.533 |
| 4 | 86 | 0.710 |
| 5 | 85 | 0.887 |
| 6 | 84 | 1.063 |
| 7 | 83 | 1.239 |
| 8 | 82 | 1.415 |
| 9 | 81 | 1.589 |
| 10 | 80 | 1.763 |
| 11 | 79 | 1.936 |
| 12 | 78 | 2.108 |
| 13 | 77 | 2.279 |
| 14 | 76 | 2.449 |
| 15 | 75 | 2.618 |

| Your Site Latitude | Elevation Angle | Declination Angle |
|-----------------------|--------------------|----------------------|
| 34 | 56 | 5.510 |
| 35 | 55 | 5.641 |
| 36 | 54 | 5.770 |
| 37 | 53 | 5.897 |
| 38 | 52 | 6.025 |
| 39 | 51 | 6.142 |
| 40 | 50 | 6.260 |
| 41 | 49 | 6.376 |
| 42 | 48 | 6.489 |
| 43 | 47 | 6.600 |
| 44 | 46 | 6.708 |
| 45 | 45 | 6.813 |
| 46 | 44 | 6.919 |
| 47 | 43 | 7.015 |
| 48 | 42 | 7.112 |
| 49 | 41 | 7.206 |

| | | |
|----|----|-------|
| 16 | 74 | 2.788 |
| 17 | 73 | 2.952 |
| 18 | 72 | 3.117 |
| 19 | 71 | 3.280 |
| 20 | 70 | 3.442 |
| 21 | 69 | 3.603 |
| 22 | 68 | 3.761 |
| 23 | 67 | 3.918 |
| 24 | 66 | 4.073 |
| 25 | 65 | 4.226 |
| 26 | 64 | 4.377 |
| 27 | 63 | 4.526 |
| 28 | 62 | 4.674 |
| 29 | 61 | 4.819 |
| 30 | 60 | 4.961 |
| 31 | 59 | 5.102 |
| 32 | 58 | 5.241 |
| 33 | 57 | 5.377 |

| | | |
|----|----|-------|
| 50 | 40 | 7.296 |
| 51 | 39 | 7.385 |
| 52 | 38 | 7.470 |
| 53 | 37 | 7.552 |
| 54 | 36 | 7.632 |
| 56 | 34 | 7.782 |
| 58 | 32 | 7.792 |
| 60 | 30 | 8.047 |
| 62 | 28 | 8.162 |
| 64 | 26 | 8.265 |
| 66 | 24 | 8.357 |
| 68 | 22 | 8.437 |
| 70 | 20 | 8.506 |
| 72 | 18 | 8.562 |
| 74 | 16 | 8.608 |
| 76 | 14 | 8.643 |
| 78 | 12 | 8.666 |
| 80 | 10 | 8.678 |

◆ SPECIFICATION

| | |
|------------------------|---|
| Protocol | : DiSEqC 1.2 |
| Compatible Receiver | : DiSEqC 1.2 Receiver |
| Antenna Size | : 120 cm Max. |
| Speed | : 1.9°/ sec (at 13V); 2.5°/ sec (at 18V) |
| Azimuth Angle | : 75°East ~ 75°West (150°Max.) |
| Elevation Angle | : 10~90° |
| Tube for Antenna | : Ø 45 x 160L mm |
| Diameter of Stand-mast | : Ø 35-65 mm |
| Input Voltage | : 13/18 VDC |
| Output Voltage | : 13/18 VDC (according to input) |
| Power Consumption | : 40 mA (Standby)/200mA (Normal)/350mA (Max.) |

| | |
|---------------------------|---|
| Satellite Positions | : 60 positions |
| Go to 0 Position Function | : Yes (Go to 0°) |
| Recalculation Function | : Yes |
| Go to X Function | : Yes |
| Manual Button | : Yes (East /West) |
| Indicating LED | : Yes (2 Colors) |
| Limit Protection | : 1.Programmable Software Limit : 2.Hardware Limit |
| Positioning Sensor | : High Resolution Hall Effect Sensor |
| Weight | : 2.55 Kg (Net) / 2.8 Kg (Gross) |
| Dimension | : 316 x 180 x 114 mm3 (Gross) |

DiSEqC™ is a trademark of EUTELSAT

◆ **Warning:**

* Only a specialist can guarantee a correct internal mechanical installation

* The motor must not be mounted upside-down

* For mounting, all the screws and nuts contained in the kit must be used. The absence of one screw or nut may cause instability or the fall off the equipment.

◆ EASY INSTALLATION INSTRUCTION

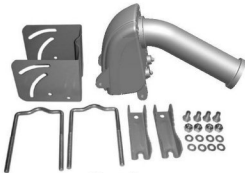


Figure 7

Step 1:

Make sure the pole/stand is exactly vertical to ground. Use a plumb and a level to do the vertical and level correction. Good pole/stand alignment is the first and the most essential step for the installation.



Figure 8

Step 2:

Mount the motor onto the pole/stand. Align the center of the motor, bracket and the pole/stand to the True South. To get the True South, use a compass to determine the Magnetic South and deduct the Magnetic Declination.

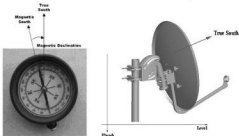


Figure 9

Step 3:

Mount the dish onto the motor's tube and wire it up; then set the elevation on motor's bracket as well as the declination on dish's bracket according to your latitude.

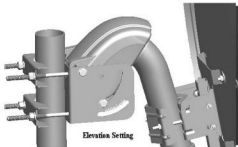


Figure 10

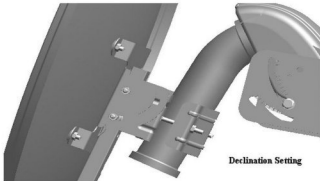


Figure 11

Step 4:

Drive the motor via motor's manual button or the receiver to aim a satellite with stronger signal, which is better not far from the True South. Go to X function can help calculate the degree the motor should rotate to.

Step 5:

In the angle mentioned above, there should be signal, and fine-tune the elevation / declination / azimuth angle / True South (Rotate the whole motor+dish) to get the best reception signal.

Then, scan the satellite and store the channels.

Step 6:

Repeat step 4 & 5 for other satellites.

Step 7:

After completing the installation, mark the current position just in case.

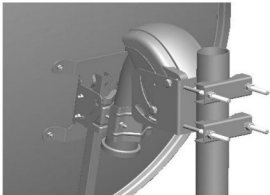


Figure 12

◆ FAQ

| Symptoms or Questions | Check point or Answers |
|--|---|
| What is Magnetic South and True South? | The direction in which the compass points is referred to as Magnetic South instead of True South. In fact, there is an angle difference called Magnetic Declination between these two. |
| After fine tune, there is still weak signal or no signal at all in the aimed satellite position. | <ol style="list-style-type: none">1. Make sure the coaxial cable is well connected.2. Make sure all the satellite equipments work properly. Also make sure all the receiver's setting (LNB, Frequency, Symbol rate...) is correct.3. Make sure the pole/stand is straight and vertical to the ground. |

Only one or two satellites' signal are receivable.

It might be the reception arc does not correspond to the satellites arc. Make sure the pole/stand is straight and vertical to the ground, and fine-tune the elevation /declination /azimuth angle patiently.

What is Go to X function?

It is a standardDiSEqC1.2 command that drives motor to needed angle. Some receivers support this function and even can calculate the right angle to the aimed satellite according to your longitude and latitude.

* The motor has been tested for resistance in wind conditions. However, care must be taken in choosing the supporting pole and its anchorage. If possible, installation should be carried out in a place sheltered from wind (flat rooftops are never advisable).

* The use of dishes with a larger diameter than that indicated in the specifications for each motor is strictly prohibited.

* The motor, being a mechanical rotating instrument, must be installed out of reach of people.

* The motor must not be used for purposes other than those indicated by us.

* The motor has been designed to be supplied by a sat receiver or by our positioner; Any other type of supply is strictly prohibited and may cause damage or serious injury.

* Some receivers have an anti-disturbance system linked to the body of the connector F. This may provoke a slight electric shock not dangerous for the user. In particular conditions (e.g. on a roof or on a staircase) it may cause falls or injuries. Each time the motor is handled the receiver must be disconnected from the outlet.

◆ ASSEMBLE THE MOTOR

1. Assemble the H-H Motor as the following figures.
2. Make sure the mounting pole is exactly vertical before installation.
3. Fix the H-H Motor onto the mounting pole.



Figure 2

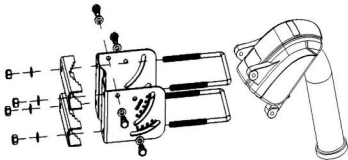


Figure 3

◆ INSTALLING THE MOTOR

I. Traditional Installation:

1. Aiming True South.

✎✎ Attaching the Antenna Dish to the Motor. Make sure it is at the center of the mounting tube.

✎✎ Rotate the motor together with the antenna toward **TRUE SOUTH**. You can find the **TRUE SOUTH** via the magnetic variation table and a compass that indicates the **MAGNETIC SOUTH**.