DiSEqC 1.2   Motorized H-H Motor
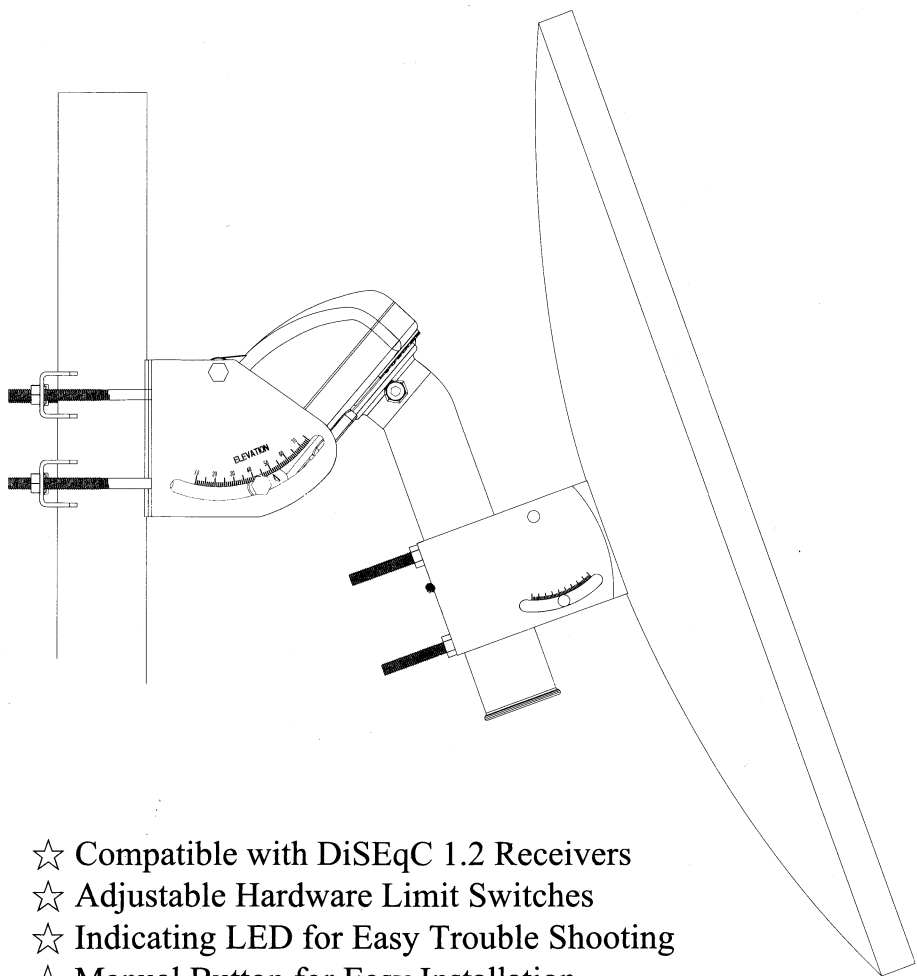
☆ Compatible with DiSEqC 1.2 Receivers
☆ Adjustable Hardware Limit Switches
☆ Indicating LED for Easy Trouble Shooting
☆ Manual Button for Easy Installation
☆ Compact, Powerful and Quiet
☆ For Dish up to 1.2 M
☆ Goto X Function

CE   DiSEqC 1.2

☆ ADJUST THE HARDWARE LIMITS if necessary

The factory preset hardware limits are from 70°East to 70°West. If smaller azimuth range is required, adjust the hardware limits as the following:

1. Always drive the motor to 0 position before adjust the hardware limits.
2. Disassemble the Mounting Tube.
3. Loose the screw on the Limit Slider. Please don't loose the screw thoroughly; otherwise, the Slider might drop into the motor.
4. Adjust the Limit Slider to the wanted angle (20~70°for East or West) .
5. Tighten the screws again.
6. Assemble the Mounting Tube onto the motor. Drive the motor East and West via the Manual Button or receiver to make sure the new hardware limits are well set.

Limit Slider 1   Limit Slider 2

Manual button   LED

Pin hole for Reset
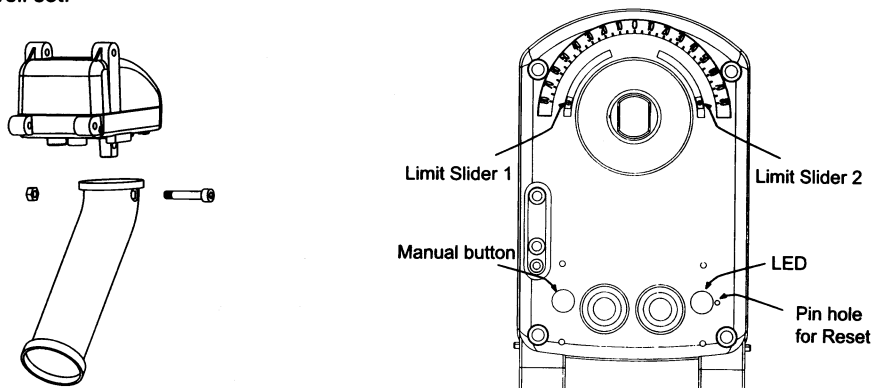
	Northern Hemisphere	Southern Hemisphere
Slider 1	West	East
Slider 2	East	West

☆ASSEMBLE THE MOTOR

Assemble the H-H Motor as the following diagram.


1
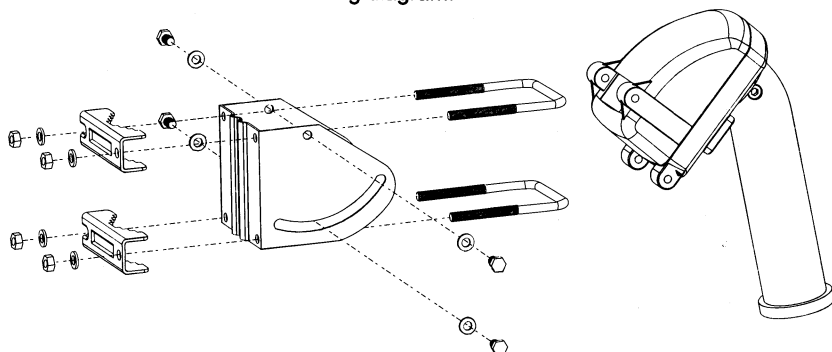
☆ INSTALL THE MOTOR

I. Traditional Installation:

1. Find an appropriate site for installation first.
   Make sure there is no obstacle in the southern sky, such as a tree or tall building.
   Make sure the mounting pole is exactly **vertical to the ground** before installation by using inclinometer (figure A) or plumb line (figure B) as below.

   Good pole alignment is the first and the most essential step for installation.
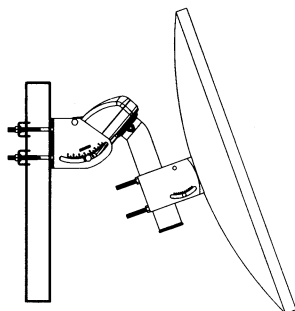
A   B
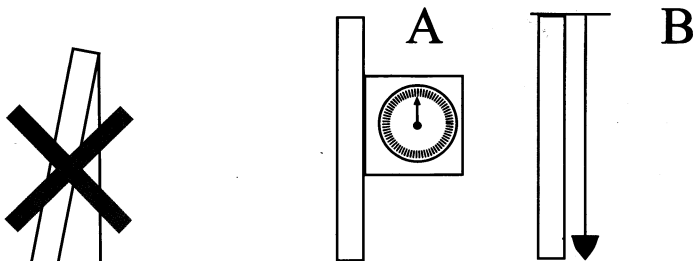
2. Fix the H-H Motor on the the mounting pole and attach the dish onto the motor pole.
   Fix the dish with the motor after aligning the centre of the dish with the centre of the motor well.

motor pole

⇨ **South**

mounting pole
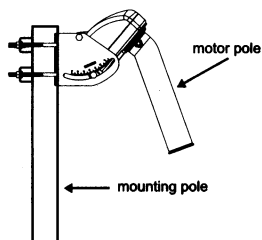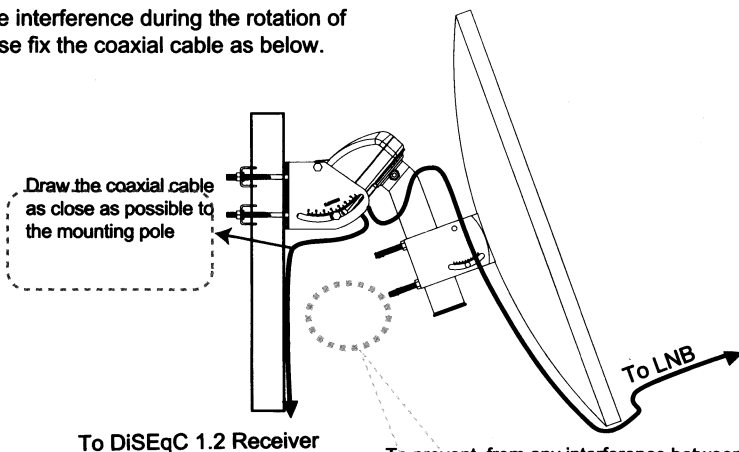
For Southern Hemisphere,
please aim the northern sky.

3. To avoid the interference during the rotation of
   motor, please fix the coaxial cable as below.

Draw the coaxial cable
as close as possible to
the mounting pole

To LNB

To DiSEqC 1.2 Receiver

To prevent from any interference between the
dish bracket and cable, please make sure
there's no obstacle or cable inside this circle.

2

4. **Aiming TRUE SOUTH. (or TRUE NORTH for the Southern Hemisphere)**
   Rotate the motor all together with the dish toward TRUE SOUTH by hand.
   You can find the MAGNETIC SOUTH by a compass, and deduct the magnetic declination to get the TRUE SOUTH.
   Please look up the magnetic declination in your location via the megnetic variation table.

5. **Setting Elevation Angle of the Motor. (A)**
   Adjust the motor elevation angle via the **Inclinometer** or the Elevation / Latitude scale on both sides of the Motor

6. **Setting Declination Angle on the Dish. (B)**
   - According to the latitude of your location, find the Declination Angle by the attached ANGLE TABLE in page 7.
   - Set the Declination Angle by the scale on the antenna dish. The reading on the Dish scale should be: **30°-DECLINATION ANGLE**

Type I (Ø 50mm)

(A) Elevation / Latitude scale

(B) scale on the antenna

Type II (Ø 42mm)
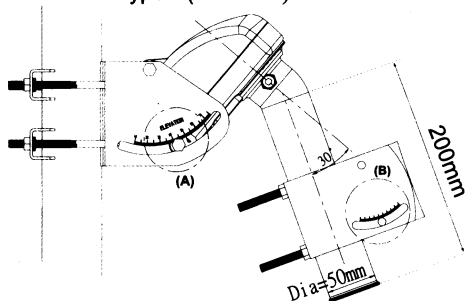
30° - DECLINATION ANGLE
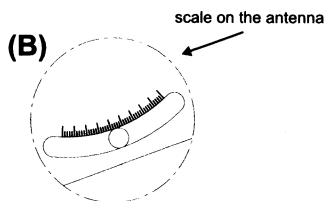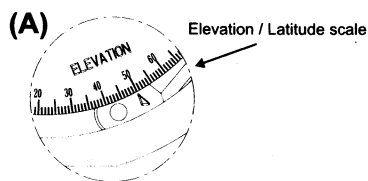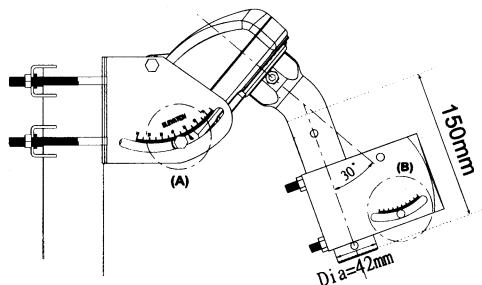
7. Drive the antenna east and west via the manual button on the bottom of the Motor or via Receiver to check if the reception arc is correct. If not, fine-tune the direction to TRUE SOURTH, elevation or declination angle to find the best reception.

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

3

II. Quick Installation (with the help of GAAPS):

1. Do the same as in Step 1 to Step 6 of "Traditional Installation". One thing different is that you don't have to find the exact True South or True North.
   Just use a Compass to make sure the H-H motor is aiming South roughly.

2. GAAPS (Global Automatic Antenna Positioning System),
   which is a useful tool for installation. The GAAPS is located at http://www.gaaps.com.tw
   Please key in the Latitude and Longitude of your location.
   Then key in one Satellite, which has the strongest signal or is most popular in your area.
   Click the "Calculate" button then you can get the Azimuth angle of the H-H motor.

example:

GAAPS
(Global Automatic Antenna Positioning System)

GAAPS is also called Goto X Calculator, which can calculate the exact angle to your aimed satellite according to your location (longitude and latitude).
It is very useful installation and trouble shooting.

p.s. Goto X function is a standard DiSEqC 1.2 command, which could drive the DiSEqC Motor to any wanted angle.

Your Longitude: [37.1] [E] ⟩ **Location of Moscow**
Your Latitude: [56] [N] ⟩

Longitude of the aimed satellite: [23.5] [E] ⟩ – **ASTRA 3A**

[Calculate]

Azimuth angle on motor: [+14.7]

note: "+" or "-" indicates different direction as below.

Azimuth angle scale
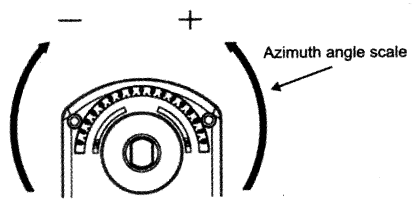
3. Make sure the Cable from LNB to Receiver is well connected and the Receiver Setting is correct according to the Satellite you choose.
   Drive the H-H motor to the Azimuth angle by Receiver with goto x function or by manual button on the bottom of motor.
   You can read the Azimuth angle from the scale on the bottom of the H-H motor.

4. Slightly rotate the whole H-H motor together with the Dish east / west to find the strongest signal. (it is equal to finding TRUE SOUTH)

5. Drive the H-H motor to other angles to find other Satellites by receiver or manual button.
   In order to find the best reception arc for all Satellites, slightly adjusting the Elevation, Declination, and Azimuth angle is sometimes necessary

4

☆ CABLE CONNECTION

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

H-H Motor
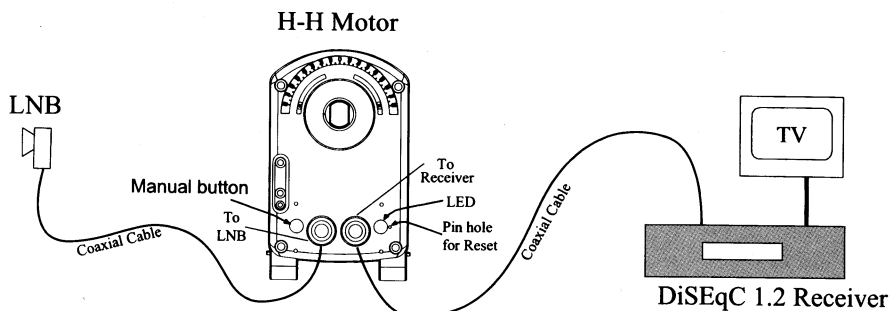
● Please follow the pictures below to protect the F connectors with the waterproof rubber sleeves.
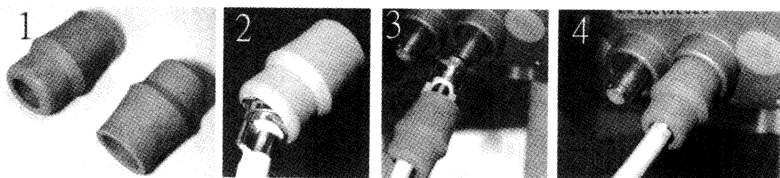
☆ MANUAL BUTTON

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.
   (p.s. for Southern Hemisphere version the East / West are reversed.)

☆ INDICATING 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 turned 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.
   And the preset SatelliteTable will be re-installed and the current position will be 0°.
   Please cut off the power for the motor first before any operation.

5

☆ DiSEqC 1.2 OPERATION

The Motor is designed for DiSEqC 1.2 Receiver. 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. Goto 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. Goto 0°: Drive the Motor to 0° as a reference point.
8. Re-synchronize / Shift:

   a) Drive the motor to a position by Goto command. For example, **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.

Stored Positions   Shifted Positions
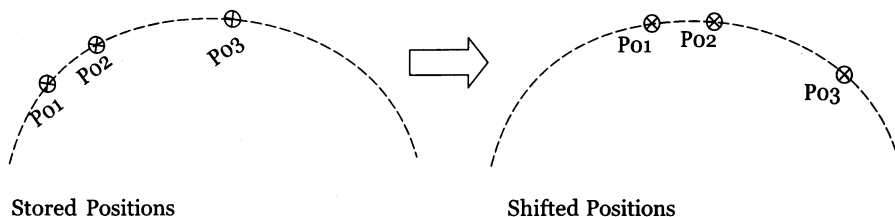
9. Goto X Function:

   a) This function only works with receivers which have goto x function.

   b) It can drive the motor to exact x.x° East or West in relative to the 0 position of the motor. (For example, 15.2° East on the bottom of the motor.)

   c) In some receivers with goto x calculator software, you can just input the longitude and latitude, and choose a avaliable satellite you want to find; the receivers can drive the antenna to the right position to focus this satellite automatically.

   Please also refer to Page 4 "Quick Installation"

6

☆ ELEVATION AND DECLINATION ANGLE TABLE (refer to page 3)

Your Site Latitude	(A) Elevation Angle	Declination Angle	(B) Dish Bracket Angle	Your Site Latitude	(A) Elevation Angle	Declination Angle	(B) Dish Bracket Angle
0	90	0.0	30.0	34	56	5.5	24.5
1	89	0.2	29.8	35	55	5.6	24.4
2	88	0.4	29.6	36	54	5.8	24.2
3	87	0.5	29.5	37	53	5.9	24.1
4	86	0.7	29.3	38	52	6.0	24.0
5	85	0.9	29.1	39	51	6.1	23.9
6	84	1.1	28.9	40	50	6.3	23.7
7	83	1.2	28.8	41	49	6.4	23.6
8	82	1.4	28.6	42	48	6.5	23.5
9	81	1.6	28.4	43	47	6.6	23.4
10	80	1.8	28.2	44	46	6.7	23.3
11	79	1.9	28.1	45	45	6.8	23.2
12	78	2.1	27.9	46	44	6.8	23.2
13	77	2.3	27.7	47	43	7.0	23.0
14	76	2.4	27.6	48	42	7.1	22.9
15	75	2.6	27.4	49	41	7.2	22.8
16	74	2.8	27.2	50	40	7.3	22.7
17	73	3.0	27.0	51	39	7.4	22.6
18	72	3.1	26.9	52	38	7.5	22.5
19	71	3.3	26.7	53	37	7.6	22.4
20	70	3.4	26.6	54	36	7.6	22.4
21	69	3.6	26.4	56	34	7.8	22.2
22	68	3.8	26.2	58	32	7.8	22.2
23	67	3.9	26.1	60	30	8.0	22.0
24	66	4.1	25.9	62	28	8.2	21.8
25	65	4.2	25.8	64	26	8.3	21.7
26	64	4.4	25.6	66	24	8.4	21.6
27	63	4.5	25.5	68	22	8.4	21.6
28	62	4.7	25.3	70	20	8.5	21.5
29	61	4.8	25.2	72	18	8.6	21.4
30	60	5.0	25.0	74	16	8.6	21.4
31	59	5.1	24.9	76	14	8.6	21.4
32	58	5.2	24.8	78	12	8.7	21.3
33	57	5.4	24.6	80	10	8.7	21.3

☆ TROUBLESHOOTING

Symptoms	Check points
The Manual Button doesn't work	1. Make sure the power of receiver is on and the indication LED on the bottom of the motor lights on. 2. Check every devices 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 a shorter time.
The Motor doesn't work	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. Make sure the Motor or antenna is not interfered with any other item.
The Motor runs discontinuously or can't be driven by DiSEqC Commands	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. Goto 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 Goto 0 position Function to go to 0 degree as a reference point.
Only one or two satellite positions are not correct, the rest are OK.	1. It's probably due to error operation while using DiSEqC 1.2 commands. Please just correct this position by re-store satellite position. 2. If this problem happens again and again, try to upgrade the receiver software to check if this problem is improved.
The Motor runs for only 1 seconds then stops. The LED shows orange.	This could be caused by a loosen magnet inside or hall sensor broken. 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.
The Motor goes to more than 75 degrees and can't go back	The problem might come from malfunction Limit Switches Module. Please contact your vendor for repair.

8

☆ 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	:	10~75°
Tube for Antenna	:	Ø 50 x 200L mm / Ø 42 x 150L mm
Diameter of Mounting pole	:	Ø 35~65 mm
Input Voltage	:	13 / 18Vdc
Output Voltage	:	13 / 18Vdc (according to input)
Power Consumption	:	50 mA (Standby) / 200mA (Normal) / 350mA (Max.)
Satellite Positions	:	60 positions
Goto 0 Position Function	:	Yes (Go to 0°)
Recalculation Function	:	Yes
Goto X Function	:	Yes
Manual Button	:	Yes (East /West)
Indicating LED	:	Yes (2 Colors)
Limit Protection	:	1. Programmable Software Limits
		2. Adjustable Hardware Limits
		3. Current Limit
Positioning Sensor	:	High Resolution Hall Effect Sensor
Weight (Gross)	:	3.5 Kg / 3.2Kg (Type I / II)
Dimension	:	345 x 168 x 110 mm^3 (Gross)

DiSEqC^{TM} is a trademark of EUTELSAT

☆ BUILT-IN SAT. TABLE (Northern Hemisphere Version)

No.	Satellite	Position	No.	Satellite	Position
1	Hot Bird	13°E	14	Hispasat	30°W
2	Astra	19.2°E	15	Telstar 11	37.5°W
3	Eutelsat W2	16°E	16	Kopernicus	23.5°E
4	Eutelsat W1	10°E	17	Arabsat 2A / 3A	26°E
5	Eutelsat W3	7°E	18	Astra 2	28.2°E
6	Sirius 2/3	5°E	19	EuroBird	28.5°E
7	Thor 2/3	0.8°W	20	Arabsat 2B	30.5°E
8	Intelsat 707	1°W	21	Turksat 1B	31.3°E
9	Telecom 2C	5°W	22	Turksat 1C	42°E
10	Telecom 2D	8°W	23	Intelsat 601	34.5°W
11	Intelsat 705	18°W	24	Pas 3R	43°W
12	NSS 803	21.5°W	25	Amos	4°W
13	Intelsat 605	27.5°W	26	Nilesat	7°W

☆ BUILT-IN SAT. TABLE (Southern Hemisphere Version)

No.	Satellite	Position	No.	Satellite	Position
1	AsiaSat 2	100.5°E	7	Optus A3	164.0°E
2	AsiaSat 3S	105.5°E	8	PanAmSat 8	166.0°E
3	AsiaSat 4	122.0°E	9	PanAmSat 2	169.0°E
4	JCSat 2A	154.0°E	10	Intelsar 802	174.0°E
5	Optus C1	156.0°E	11	Intelsat 804	176.0°E
6	Optus B1	160.0°E	12	Intelsat 701	180.0°E

Notice: Due that some receivers are designed according to
Northern Hemisphere Vesion Motor, It's recommended
to make sure the Motor go to the right direction (East / West)
with your receiver for users in Southern Hemisphere.

10

☆

Product Information	:	
Model No.	:	
Serial No.	:	
Date of Purchase:	:	
Customer's Information	:	
Name	:	
Company	:	
Telephone	:	
Address	:	
Dearler Information	:	
Name of the Dealer	:	
Telephone	:	
Date of purchase	:	