EASISAT 4.0
EASISAT 4.5

AL-CAR Technic GmbH & Co. KG
Am Rackerschlag 1-7
23909 Ratzeburg
Germany

EASISAT 4.0
EASISAT 4.5

ENGLISH : User's manual

DEUTSCH : Bedienungsanleitung

FRANÇAIS : Manual utilisateur

DUTCH : Gebruikershandleiding

ver 1.0

www.al-car.de

Contents

1. General Information

1-1. Introduction

These instructions describe the functions and operation of the EASISAT 4.0/4.5 satellite system.
Correct and safe operation of the system can only be ensured by following these instructions.

Your EASISAT 4.0/4.5 is an intelligent satellite TV reception antenna system which can align itself towards a preset satellite automatically as long as the system is located within the footprint of the selected satellite.

For general operation, please ensure that the system always has a clear view to the sky. If the satellite's signal beam is interrupted by obstacles such as mountains, buildings or

1-2. Proper use and operation

This product has been designed for fixed installation on vehicles with maximum speeds of 130 km/h. It is designed to automatically aim an antenna at geostationary television satellites. The power to the system is supplied by a standard vehicle electrical system with a rated voltage of 12 Volts DC.

Use of the equipment for any other purpose to the one specified is not permitted.

Please also note the following instructions from the manufacturer :

- It is not permitted to change the overall device by removing or adding individual components. The use of any other parabolic reflectors or LNBs to those originally installed is not allowed.
- Installation must only be performed by sufficiently qualified personnel. All instructions in the supplied Installation instructions, which is separately provided, must be carefully followed.
- The product does not require any regular maintenance. Housings and enclosures must not be opened. Check and maintenance work should always be carried out by a qualified specialist.
- All of the relevant and approved guidelines of the automotive industry must be observed and complied with.
- The equipment must only be installed on hard vehicle roofs.
- Avoid cleaning your vehicle with the mounted satellite system in a single-bay or drive-through car wash or with a high-pressure cleaner.
- In case of storm or strong winds, bring the antenna down.

1-3. Safety notes

In order to ensure that your EASISAT 4.0/4.5 works properly you must ensure that it is following by the Operating Instructions in this manual and used as intended purpose.
When it is correctly installed, the antenna automatically assumes the rest position when the ignition is switched on and locks itself.

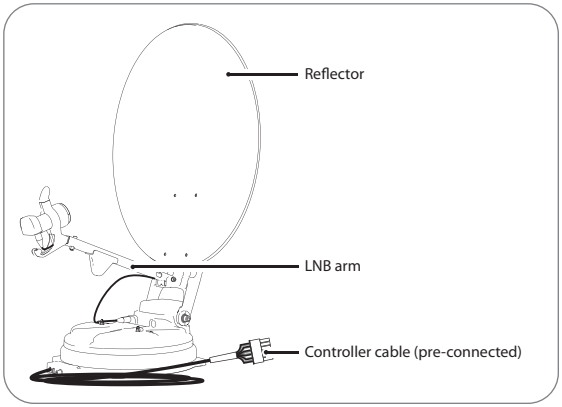
The driver of the vehicle must inspect the antenna unit before driving off to ensure that the antenna is properly stored in safe. Check with your naked eye to see if the antenna is fully folded.

As the user of this equipment, you are responsible for yourself ensuring compliance with the relevant laws and regulations.

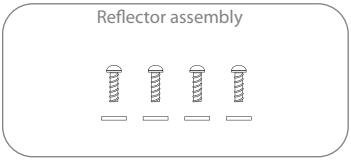
The manufacturer does not take liability for direct or indirect consequential damage of the system, motor vehicles or other equipment by reason of unsuitable battery

2. Contents

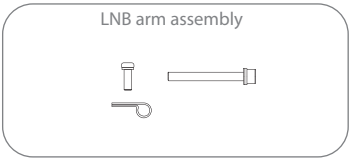
2-1. Components bundle



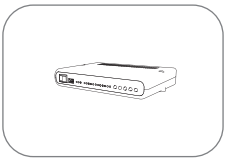
Main unit



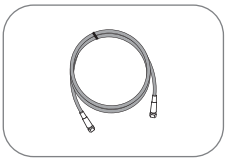
Truss head M6× 15 (4),
M6 Flat mold washer (4)



Cable clamp (1), Sems1 M4×10 (1)
Sems2 M6x55 (1)

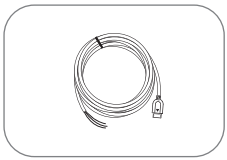


Controller

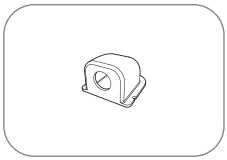


STB cable (3m)

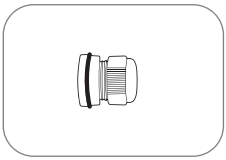
Signal cable (7m)
(x2 for optional twin outputs)



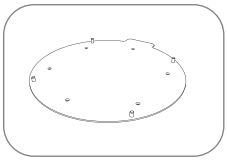
Power input cable



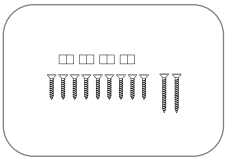
Cable holder



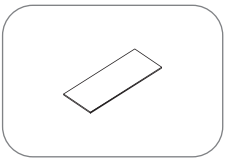
Cable gland



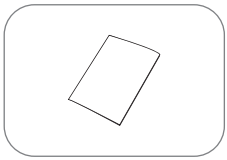
Mounting plate



M4× 20(9), M4× 30(2),
M8 locking nut(4)



LNB protection pad

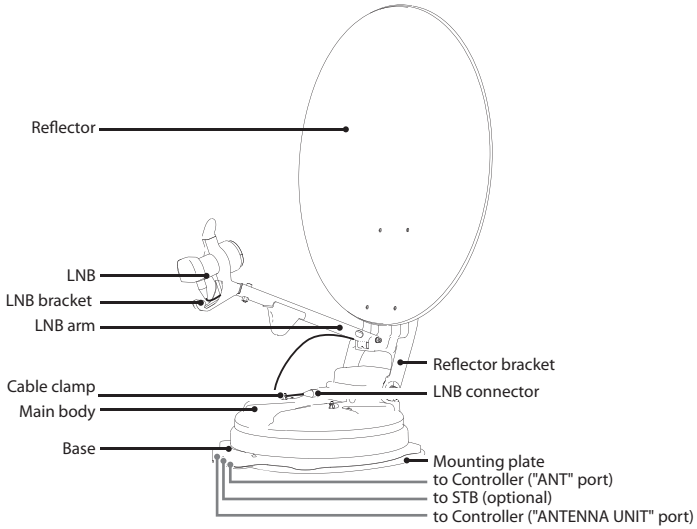


User manual

※ Actual components may differ from the above images.

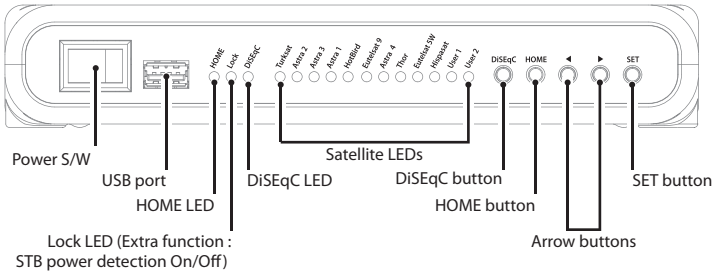
2-2. Name of parts

Parts of Main unit



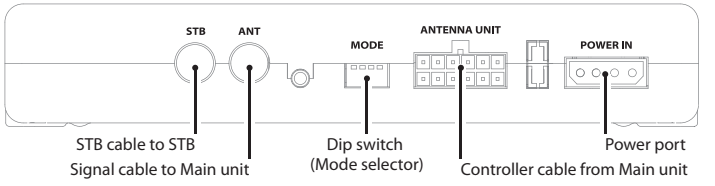
Parts of Controller

• **Front**



LED Indicator	● On	○ Off	◎ Blinking

• **Back**

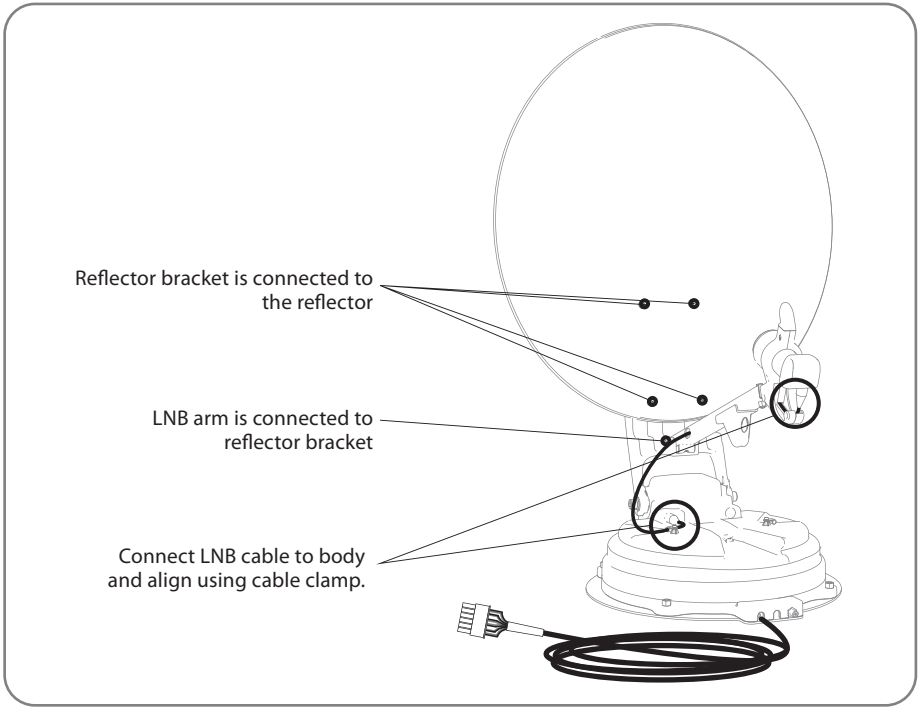


3. How to assemble

Step 1 : Power on the unit and press SET at any satellite

Step 2 : When reflector bracket is lifted up to vertical direction(about 90 degrees), turn the unit off

Step 3 : Combine reflector with reflector bracket



Step 4 : Combine LNB arm with reflector bracket

Step 5 : Connect LNB cable to the connector on the body, and cover the LNB connector with waterproof cap for protection

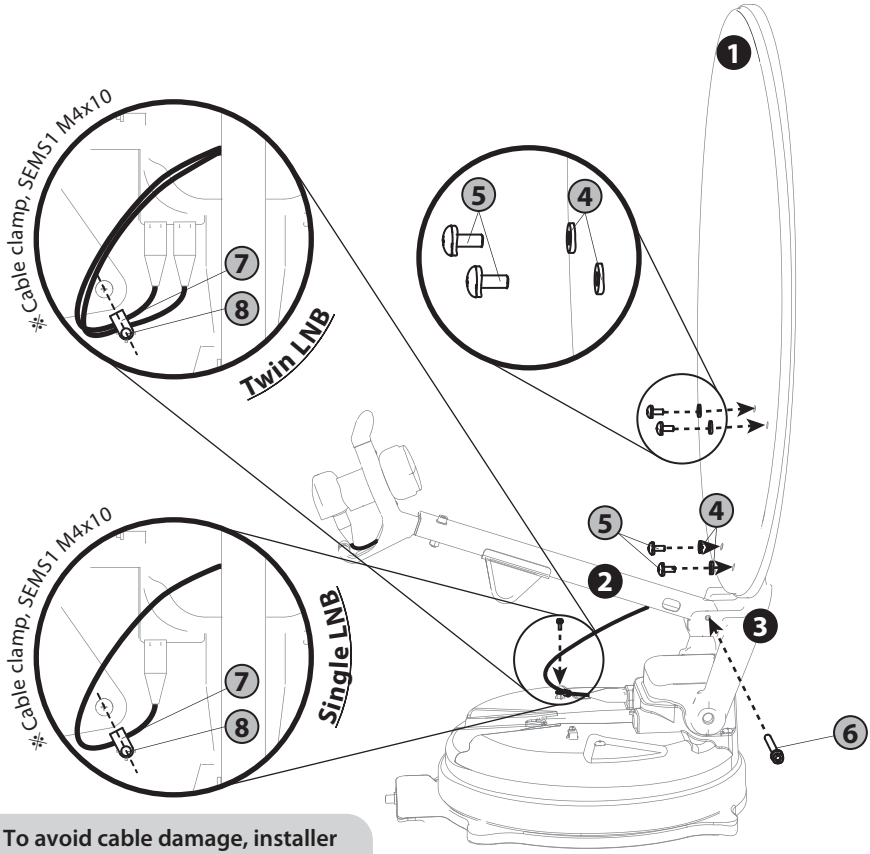
Step 6 : Align LNB cable on the body using cable clamp

※ To avoid cable damage, installer has to fix LNB cable as enlarged image on following page 7~ 9.

Step 7 : Power on and check the installation is completed as HOME positioning

- **Installation A : 65cm dish antenna**

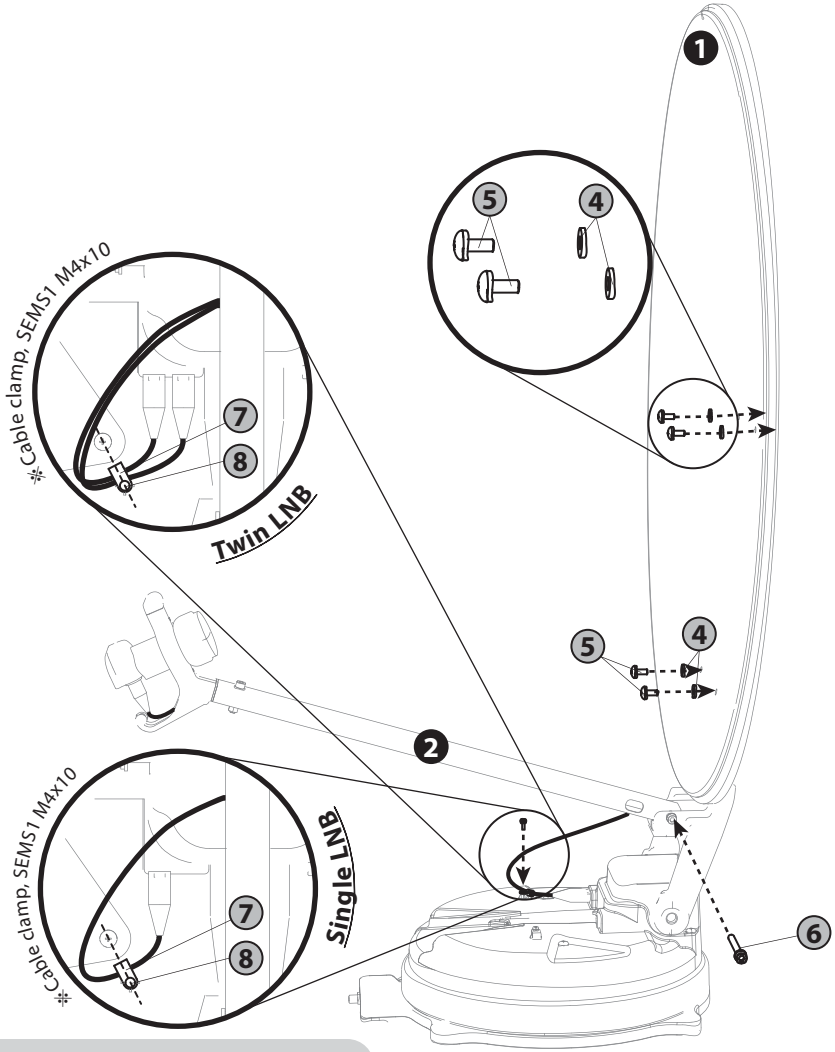
No	Part name	Quantity
①	Reflector	1
②	LNB arm	1
③	Reflector bracket	1
④	M6 flat mold washer	4
⑤	Truss head M6x15	4
⑥	SEMS2 M6x55	1
⑦	Cable clamp	1
⑧	SEMS1 M4x10	1



※ To avoid cable damage, installer has to fix LNB cable using cable clamp . Please refer to the detail at the next page.

- **Installation B : 85cm dish antenna**

No	Part name	Quantity
①	Reflector	1
②	LNB arm	1
③	Reflector bracket	1
④	M6 flat mold washer	4
⑤	Truss head M6x15	4
⑥	SEMS2 M6x55	1
⑦	Cable clamp	1
⑧	SEMS1 M4x10	1

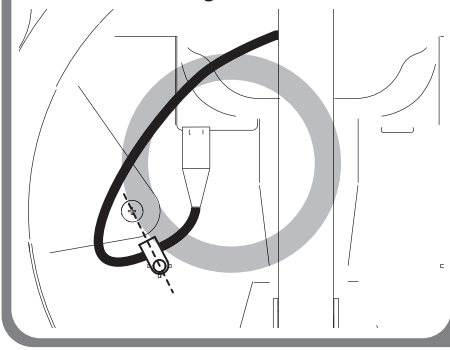


※ **To avoid cable damage, installer has to fix LNB cable using cable clamp . Please refer to the detail at the next page.**

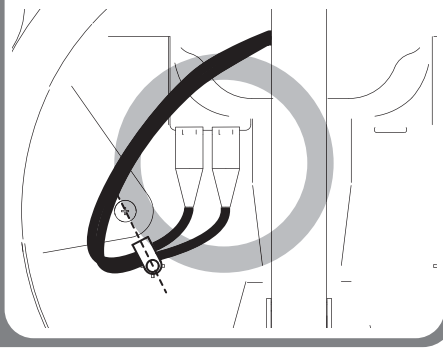
※ Caution on fixing LNB cable

Good example

Single LNB

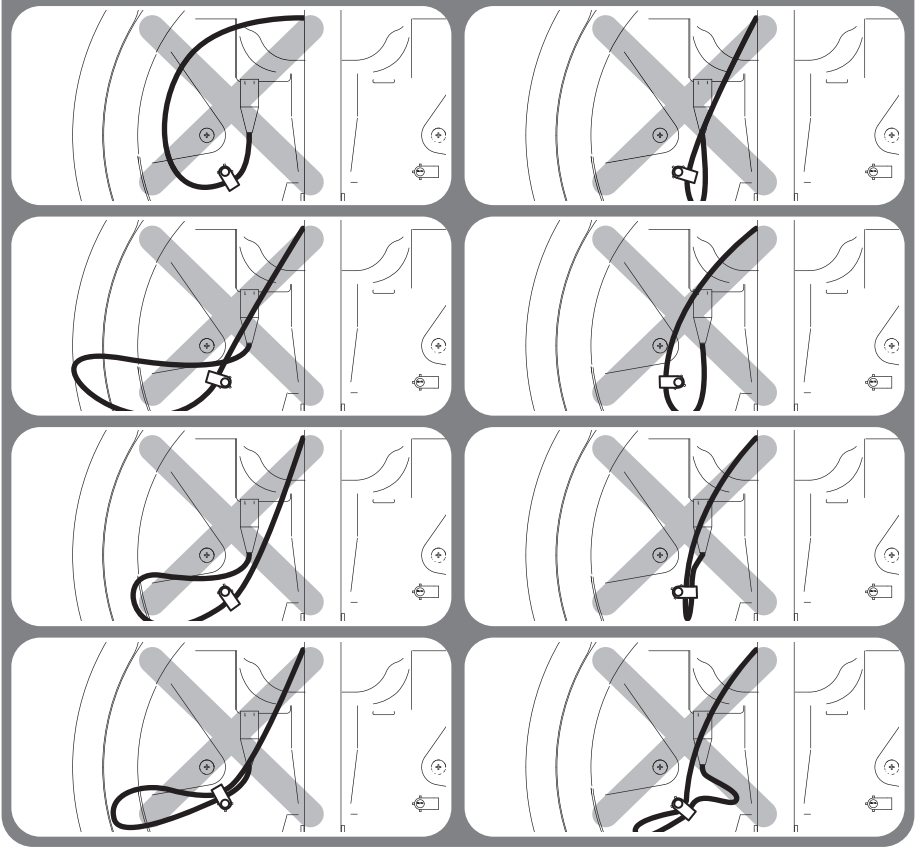


Twin LNB

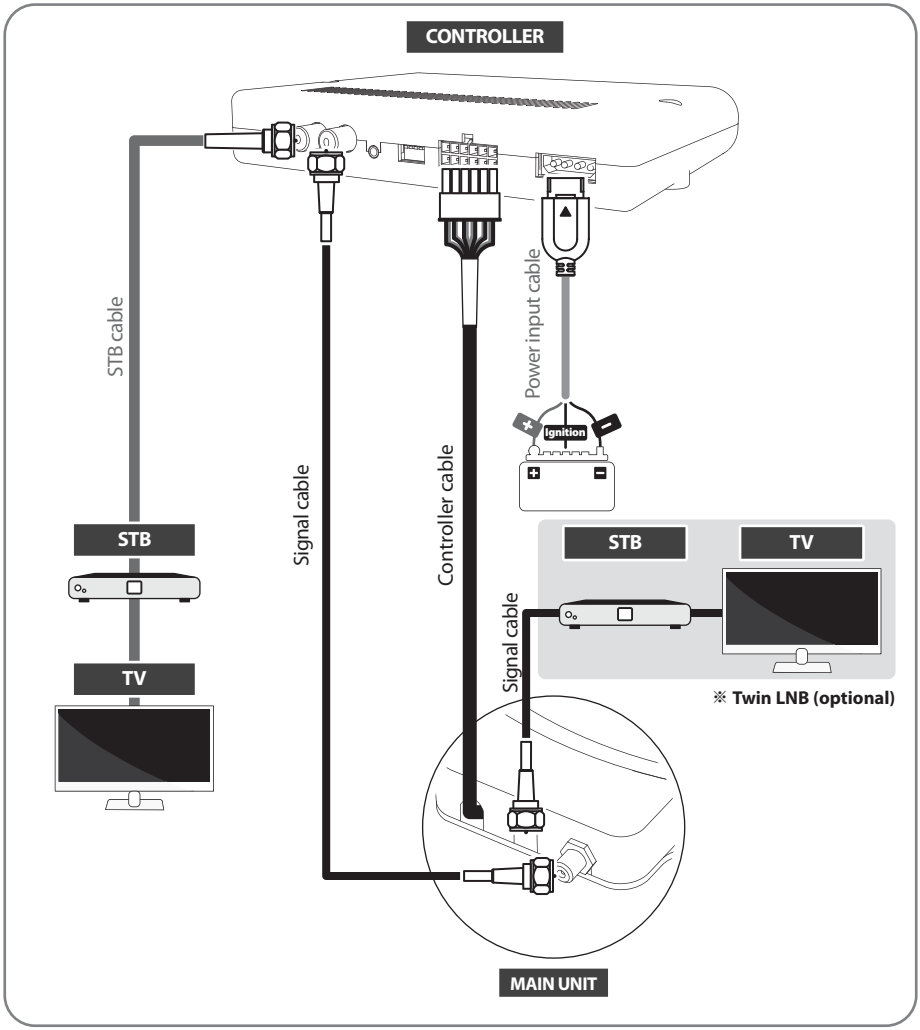


Bad example

※ Bad examples are the same for Single LNB and Twin LNB.



4. Connection diagram



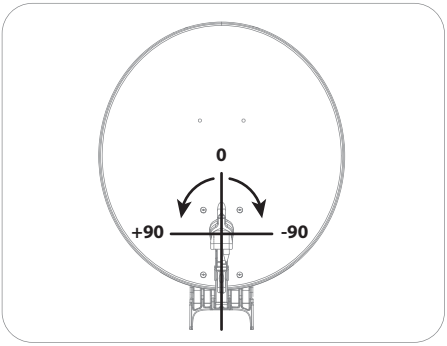
- Use controller cable to connect the antenna to the controller. Controller cable is pre-connected to the main body
- STB cable and signal cable have different lengths. Please check the lengths to use the correct cable for the job
- Please ensure the supplied cables are used and not modified in anyway

※ Additional STB can display the selected satellite channels at main STB and it cannot select or change the satellite. Main STB which is connected via controller is only supportive DiSEqC function.

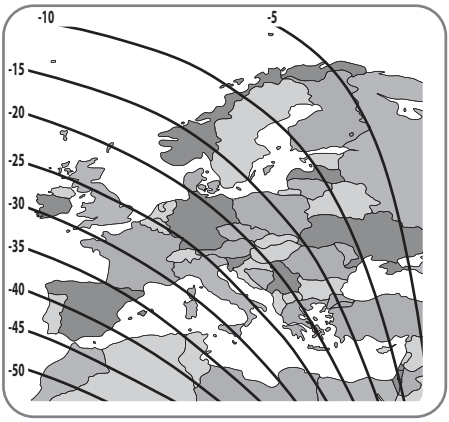
5. Skew adjustment

※ For EASISAT 4.0/4.5 standard models only.

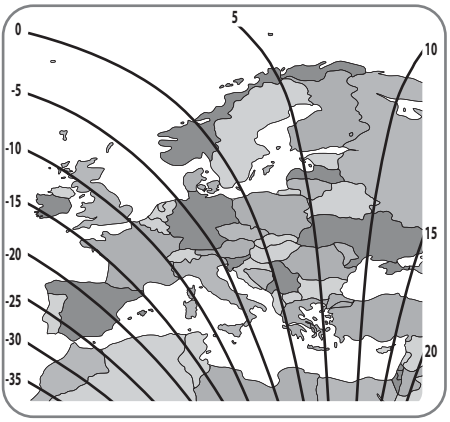
The LNB at the end of the satellite picks up either horizontal or vertical signal. To change horizontal to vertical signal, turn the LNB as 90° (vice versa).
Skew adjustment is required according to target satellites and regions. For the best signal quality, adjust skew by referring to the below images.
Accuracy is not important, so small tolerance will be acceptable. It will be easy to check the satellite's signal quality on STB with turning the LNB little by little.



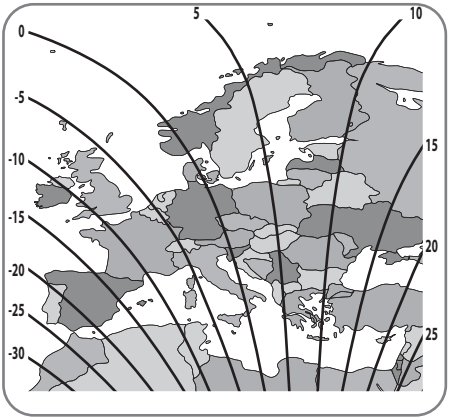
Turksat @ 42.0°E



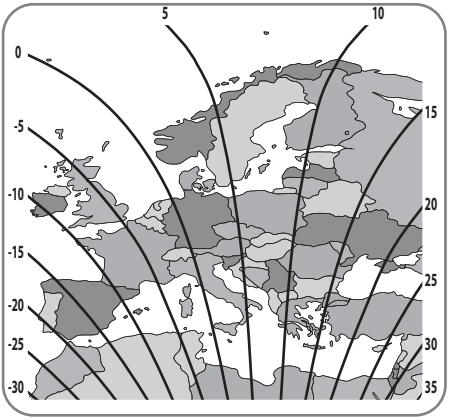
Astra2 @ 28.2°E



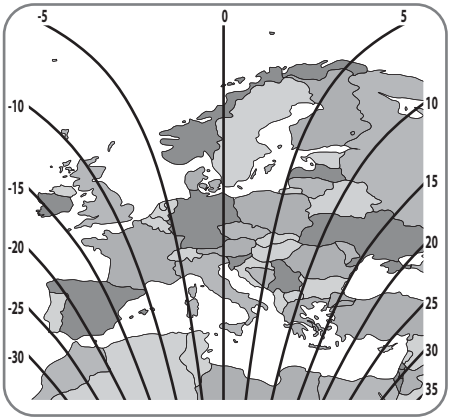
Astra3 @ 23.5°E



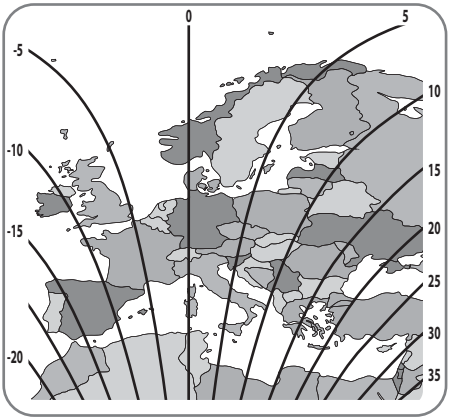
Astra1 @ 19.2°E



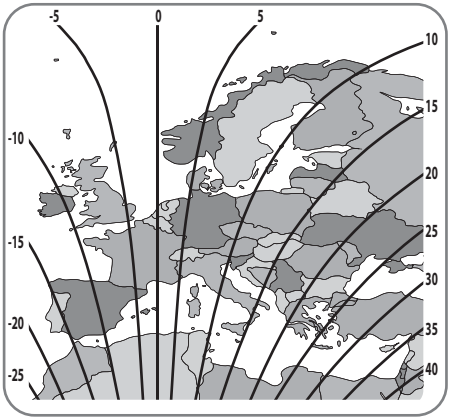
HotBird @ 13.0°E



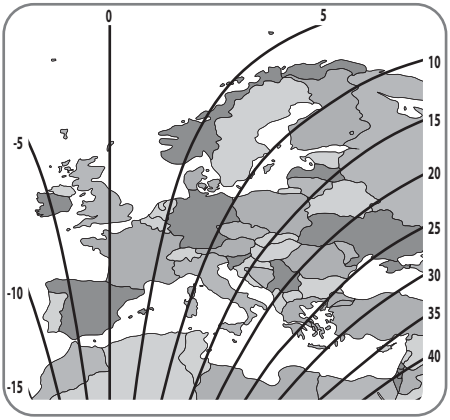
Eutelsat 9A @ 9.0°E



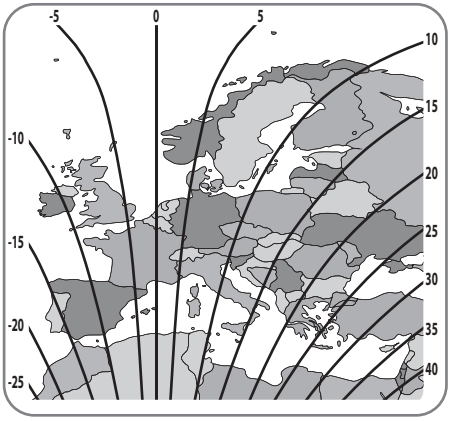
Astra4 @ 4.9°E



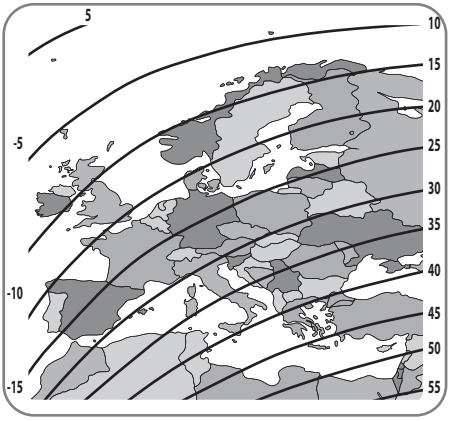
Thor @ 0.8°W



Eutelsat 5West @ 5.0°W



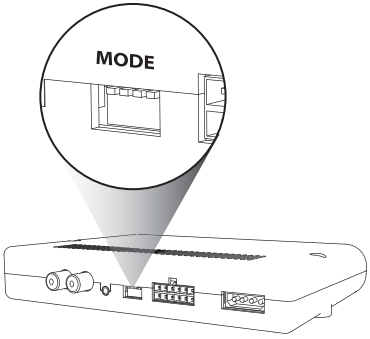
Hispasat @ 30.0°W



6. Functional description

6-1. Get ready to use

See below table to find the model and match the controller has correct pre-setting as needed.
You should leave as it is and do not change setting as own discretion unless mismatch with the model.

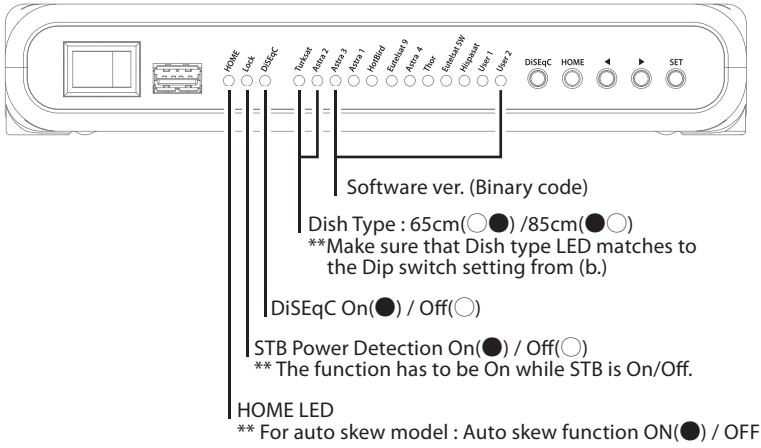


Controller Back

Model \ Antenna	65cm	85cm
Standard	#2 down	#1 down
Auto skew	#2,4 down	#1,4 down

※ Incorrect setting causes deterioration of reception performance.

a. All satellite LEDs blink and then system is displayed like below image

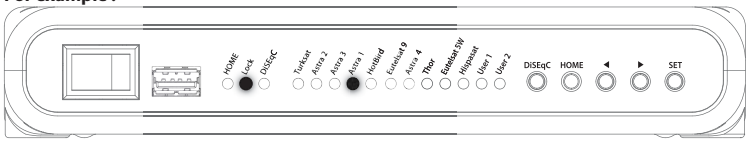


b. When HOME LED becomes solid this means the antenna is ready to operate
(If the antenna is not at HOME, HOME LED blinks while coming back HOME)

6-2. Searching the satellite

a. Go to the target satellite using arrow buttons and press SET to search
b. Lock LED blinks during searching process and becomes solid when the target satellite is locked

For example :



c. If wrong satellite is selected, move to the correct satellite and press SET to confirm the new satellite
d. After use or before travelling, press HOME for HOME positioning

6-3. DiSEqC 1.1 setting

Refer EASISAT 4.0/4.5's pre-set satellites for DiSEqC 1.1. when user setup at STB

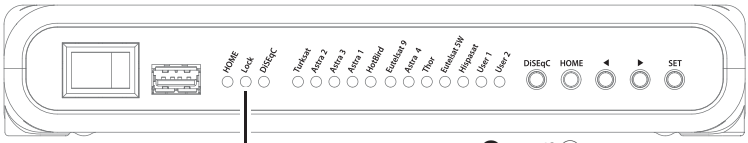
NO	LNB	Satellite
1	LNB 1	Turksat
2	LNB 2	Astra 2
3	LNB 3	Astra 3
4	LNB 4	Astra 1
5	LNB 5	Hotbird
6	LNB 6	Eutelsat 9
7	LNB 7	Astra 4
8	LNB 8	Thor
9	LNB 9	Eutelsat 5W
10	LNB 10	Hispasat
11	LNB 11	User 1
12	LNB 12	User 2
13	LNB 13	x
14	LNB 14	x
15	LNB 15	Search Current Satellite
16	LNB 16	Go to HOME position

a. The default setting for DiSEqC is ON, DiSEqC LED is on.
To switch the function ON/OFF, make sure that antenna is at HOME and press DiSEqC button for 2 seconds. (See also DiSEqC LED status changes between ON and OFF.)

b. For DiSEqC operating of the antenna, STB has to have matching satellite list as EASISAT 4.0/4.5's pre-set list. User needs to assign satellites in same order (#1~12 in the above table) at STB's DiSEqC setting to be ready for DiSEqC function use.

6-4. STB power detection On/Off

a. Ensure that the unit is turned off
b. Press and hold Right Arrow button and turn on the Power switch
c. When HOME LED becomes solid this means the function change is finished
   (If the antenna is not at HOME, HOME LED blinks while coming back HOME)

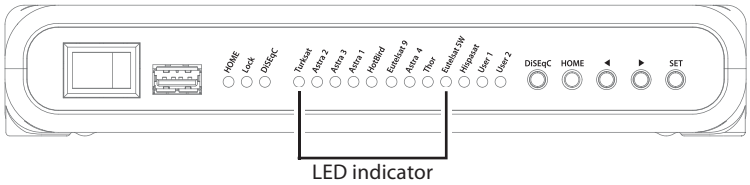


STB Power Detection On(●) / Off(○)
**The function has to be On while STB is On/Off.

7. Extra functions

7-1. Error message

Error message LEDs (HOME /Lock /DiSEqC) will be illuminated at the same time if there is a problem with the main unit and detail is indicated as :

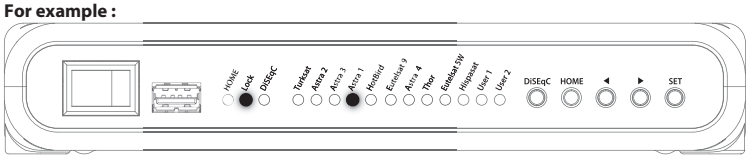


NO	LED indicator	Error detail
1	Turksat	Low power
2	Astra 2	Tuner error
3	Astra 3	AZ motor error
4	Astra 1	EL motor error
5	Hotbird	SK motor error
6	Eutelsat 9	AZ motor current error
7	Astra 4	EL motor current error
8	Thor	SK motor current error
9	Eutelsat 5W	EL range error

7-2. Factory reset

a. Ensure that the unit is turned off
b. Press and hold HOME button and turn on the Power switch

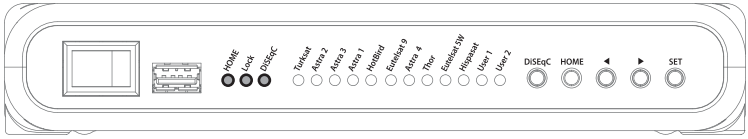
For example :



c. Factory reset takes less than 10 seconds
d. When HOME LED becomes solid this means the function change is finished (If the antenna is not at HOME, HOME LED blinks while coming back HOME)

7-3. Software upgrade

a. Transfer "EASISAT 4.0/4.5.BIN" file to a USB stick. Do not place inside a folder
b. Ensure that the unit is turned off and plug the USB into USB port
c. Press and hold SET button and turn on the Power switch
d. HOME /Lock /DiSEqC LEDs blink together while checking upgrade file



e. Software upgrade takes about 10 seconds
f. When the upgrade is completed, all Satellite LEDs flash once, then HOME / Lock / DiSEqC LED is off, controller is rebooted
g. When HOME LED becomes solid this means the antenna is ready to operate

h. If upgrade is failed, HOME /Lock /DiSEqC LEDs blink 5 times and back to the previous system

8. Trouble shooting

There are a number of common issues that can affect the signal reception quality or the operation of the unit. The following sections address these issues and potential solutions.

A. No function when power on the controller

i. Check again all the cable connections have been made correctly.

- Connection between the power and controller.
- Connection between the controller and antenna. Make sure that the left port of the antenna is connected to the controller.

ii. Check if the power input cable has been damaged.

iii. Check the battery polarities (+/-).

B. Fail to search the selected satellite

i. Satellite signals can be blocked or degraded by buildings, trees. Make sure there are no obstructions in a southward direction.

ii. Select another satellite if this locks then select your desired satellite.

iii. Turn the unit off and then back on again and select desired satellite.

C. Mechanical problems

i. If the antenna does not move into desired position.

- Try to power OFF/ON again.

ii. If the antenna makes a noise while remaining static.

- Try to power OFF/ON again. If problem persists, please contact local dealer/shop for assistance.

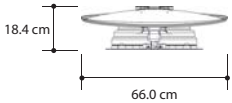
D. Other issues

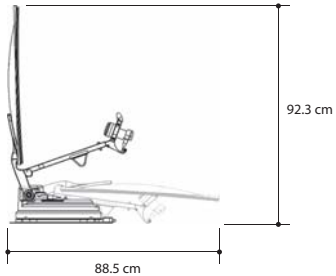
i. If the system has been improperly wired, it will not operate properly. Contact local dealer/shop for assistance of cable damage.

9. Specifications

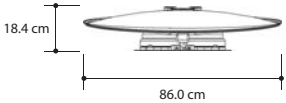
9-1. Dimension

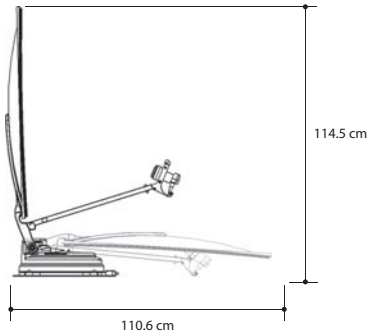
EASISAT 4.0





EASISAT 4.5





9-2. Specifications

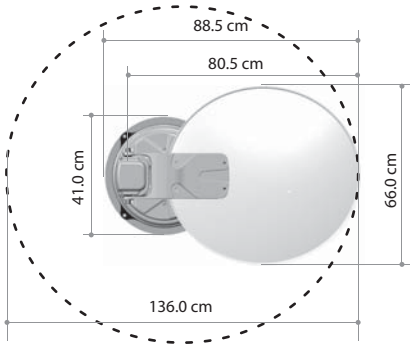
MODEL		***EASISAT 4.0***	***EASISAT 4.5***
WeigInput Satellite Frequency		10.7 ~ 12.75 GHz	10.7 ~ 12.75 GHz
Polarization		Vertical & Horizontal	Vertical & Horizontal
Typical Dish Size		65 cm	85 cm
Size (W x L)		66.0 x 71.0 cm (Offset Dish)	86.0 x 91.0 cm (Offset Dish)
Dimensions (L x W x H)		88.5 x 66.0 x 18.4 cm (Folded)	110.6 x 86.0 x 18.4 cm (Folded)
Weight		12 kg	13.8 kg
Min EIRP		46 dBW	44 dBW
Angle Range (EL / AZ)		0° ~ 145° / 390°	0° ~ 145° / 390°
Angle Range (Skew)		Manual / Auto (Optional)	Manual / Auto (Optional)
Satellite Searching Time		180 seconds (Average)	180 seconds (Average)
	Output	1 / 2 output (Optional)	1 / 2 output (Optional)
LNB	Output Frequency	950 ~ 2,150 MHz	950 ~ 2,150 MHz
	L.O. Frequency	9.75 / 10.6 GHz	9.75 / 10.6 GHz
Operating Temperate		-20℃ ~ +60℃	-20℃ ~ +60℃
Input Voltage		DC 12V	DC 12V
Power Consumption		50 W (In searching)	50 W (in searching)

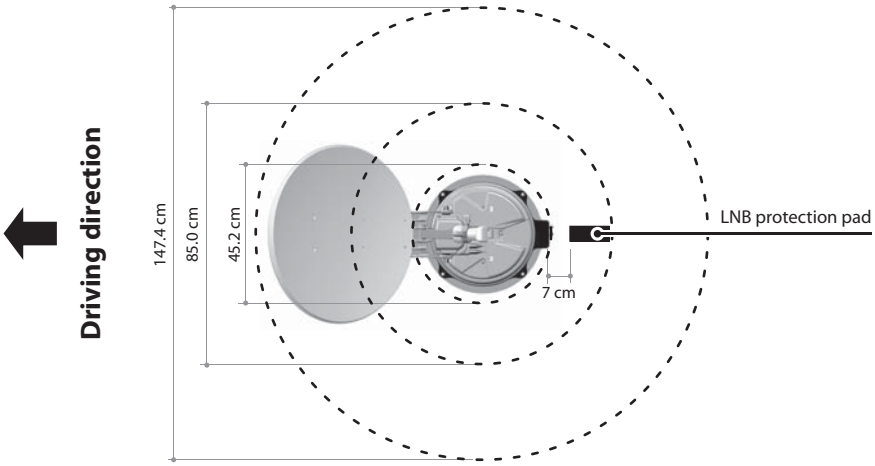
10. Caravan/Motorhome installation

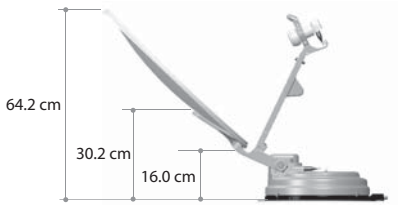
10-1 . Required space for the EASISAT 4.0/4.5

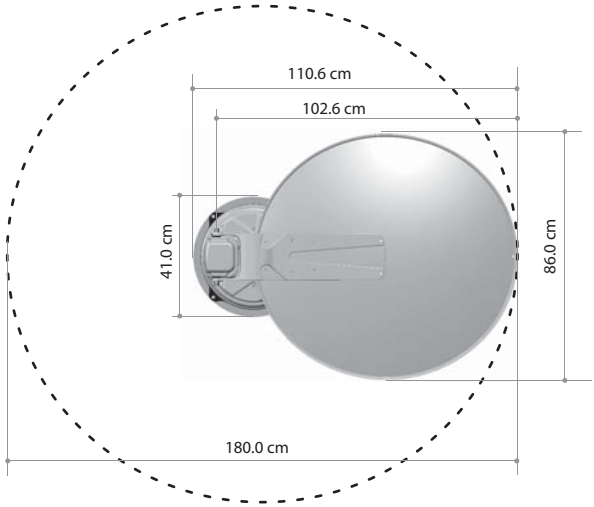
Take care, that there is enough space for the fold EASISAT 4.0/4.5, just as for the operation range(cruising radius).

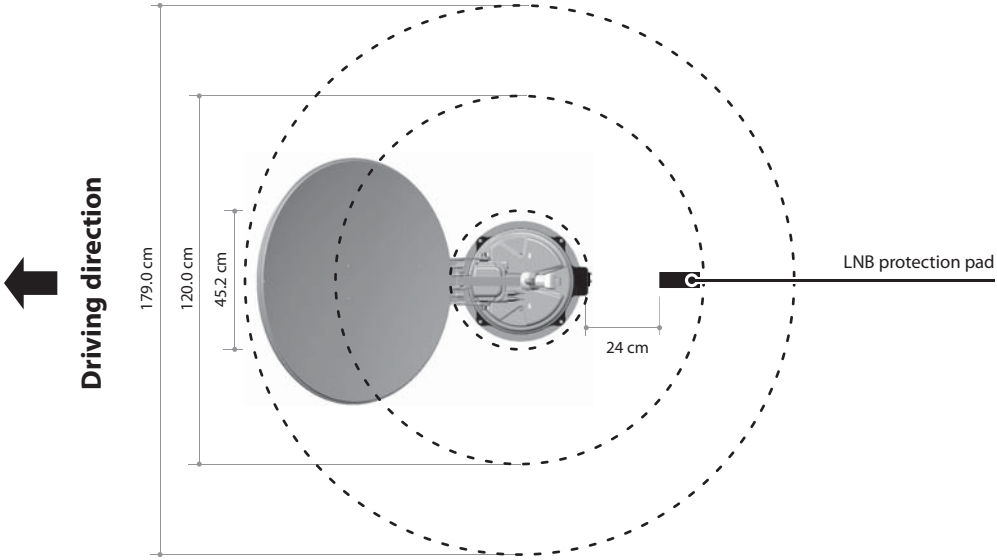
EASISAT 4.0

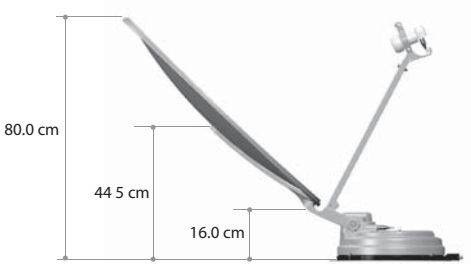




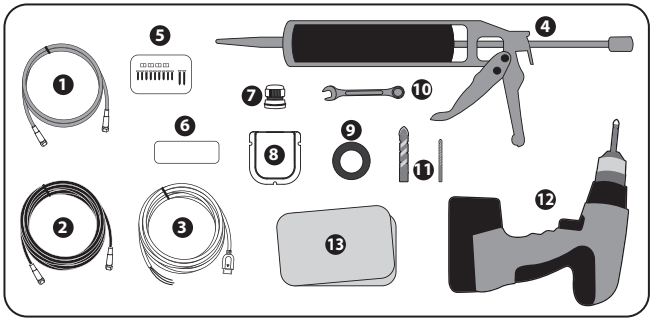



110.6 cm
102.6 cm
41.0 cm
86.0 cm
180.0 cm

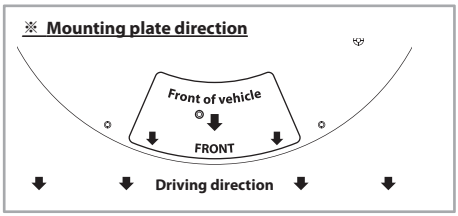

Driving direction
179.0 cm
120.0 cm
45.2 cm
LNB protection pad
24 cm

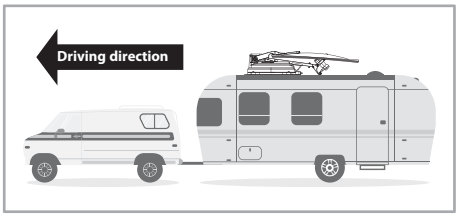

80.0 cm
44 5 cm
16.0 cm

10-2. Equipment for installation

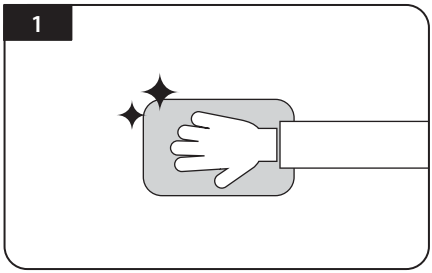


1. Signal cable
2. Controller Cable
3. Power input cable
4. Silicone
5. M4× 20(9), M4× 30(2), M8 locking nut(4)
6. LNB protection pad
7. Cable gland
8. Cable holder
9. Masking tape
10. Spanner
11. 2mm drill bit, 35mm drill bit
12. Power drill
13. Cleaner

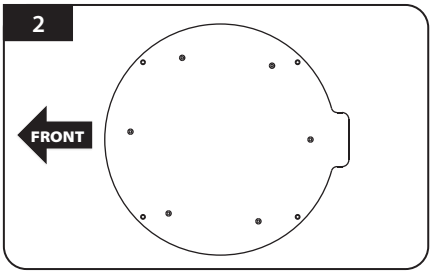




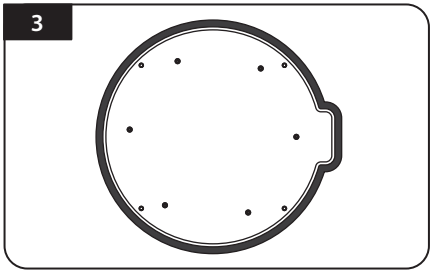
10-3. Instruction for installation



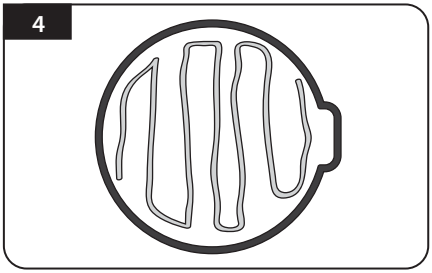
Clean the surface with cleaner



Locate mounting plate in the centre of the vehicle roof

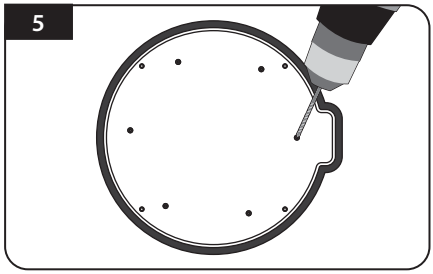


Attach masking tape outside of the mounting plate by 5mm away from the plate edges



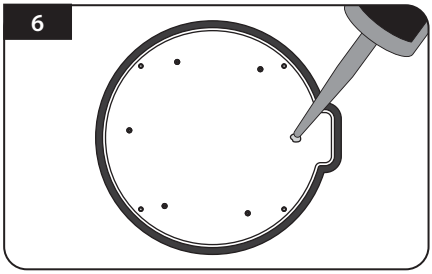
Put aside the mounting plate to apply silicone within the attached tape line but leave 2cm inward gap from the line

5



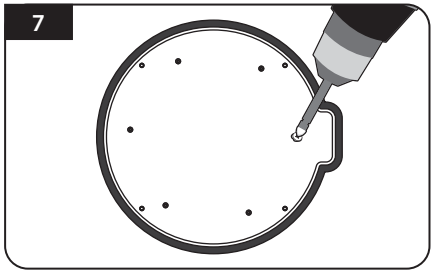
Place the mounting plate on the silicone and make 6 holes (2mm) with a power drill

6



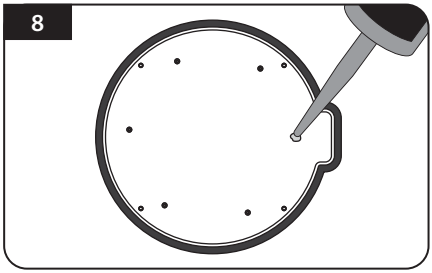
Apply silicone on the holes

7



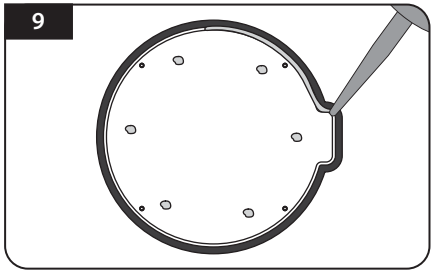
Screw bolts

8



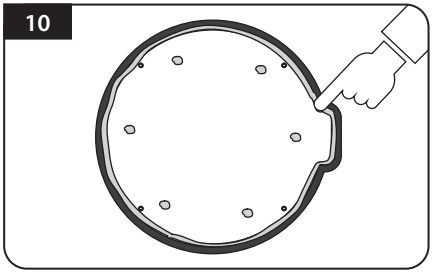
Re-apply silicone to cover screwed bolts

9



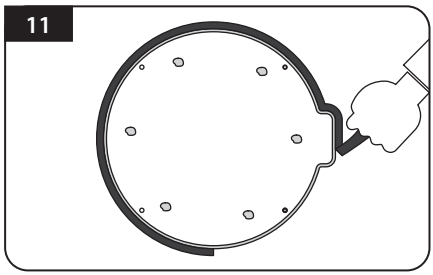
Apply silicone around mounting plate edge

10



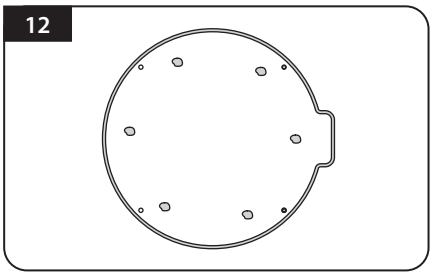
Clean away the excess silicone

11



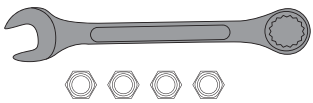
Remove masking tape and allow to dry

12



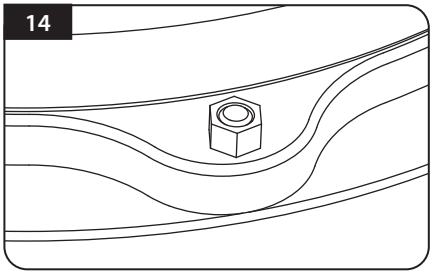
Prepare to place the antenna on to the four upright bolts

13



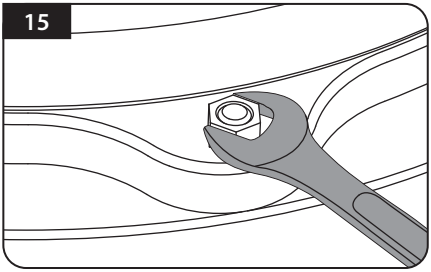
Parts required, spanner, four(4) nuts

14



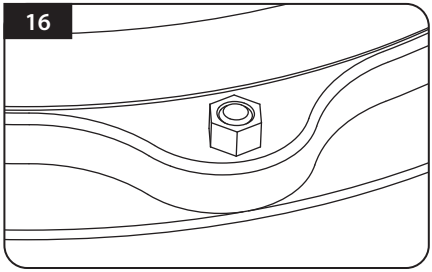
Place the antenna on the aluminium plate and place the washers over each bolt

15



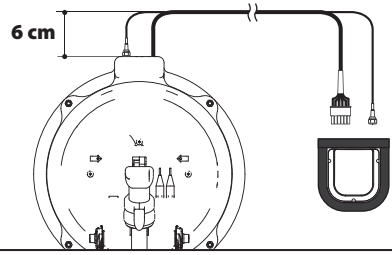
Fit the supplied nuts to each of the four bolts and tighten firmly with spanner

16



Make sure you check and four (4) nuts are tightened

17



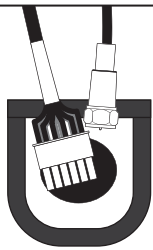
Connect signal cable to antenna port and place cable holder bottom next to the center of the antenna base and then apply masking tape 5mm from the outside of the cable holder bottom

※ **To prevent the damage of cable, cable shaping is necessary. By referring the above image, arrange the cable from the antenna base port straight in 6 cm, and then bend it to cable holder bottom.**

18

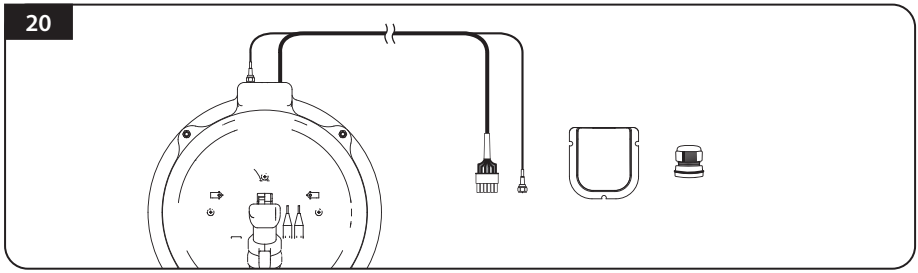
Drill a 35mm hole (or larger) in the centre of the tape marking

19



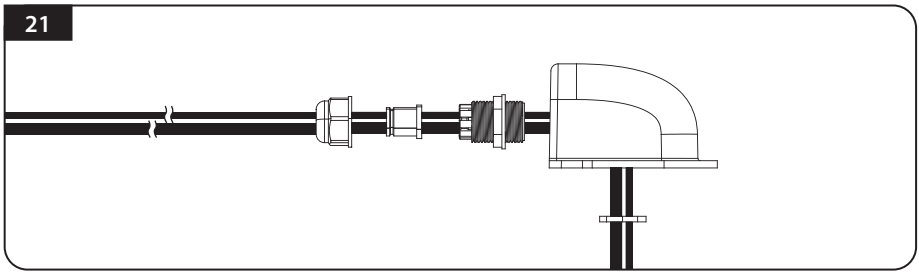
Make sure that hole size is big enough to insert all cables together by one and one

20



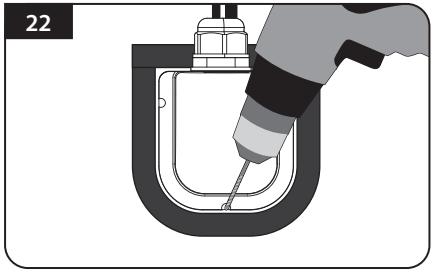
Get controller cable and signal cables, cable holder and gland for installation

21



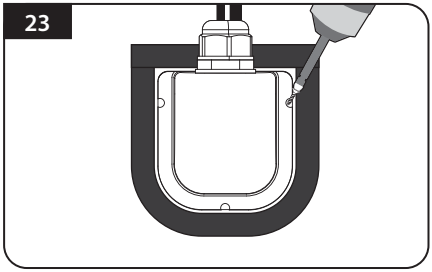
Put the cable inside the cable holder as above picture

22



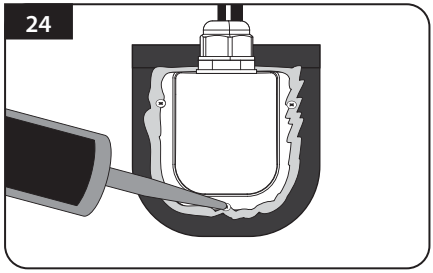
Place the assemble cable holder inside the tape markings. Drill three(3) 2mm holes

23



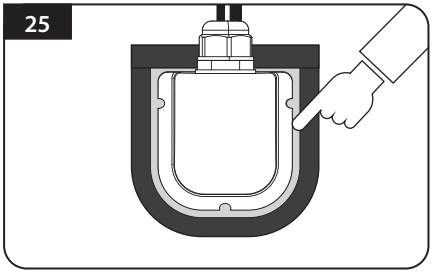
Fix cable holder on the vehicle roof with three(3) of M4 x 20 screws at drill holes made

24



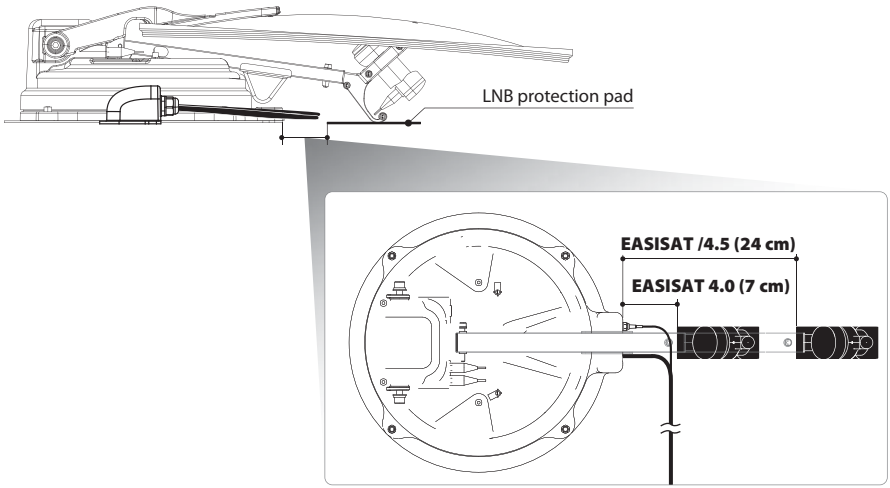
Apply silicone around cable holder and on the top of the screws for waterproof

25



Connect cables to fassigned and remove masking tape then tidy silicone before dry

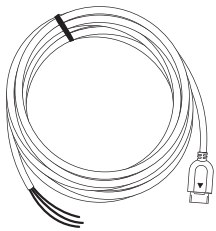
26



Attach LNB protection pad on the point which is apart 7 cm (24 cm in EASISAT 4.5) from antenna base. Check that LNB protection pad is correctly placed where LNB bracket touches on the vehicle roof

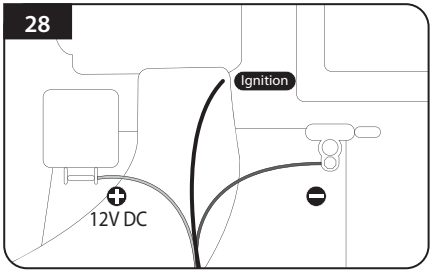
※ **To prevent entanglement of cables, make sure antenna LNB cable does not be touched by the LNB protection pad.**

27



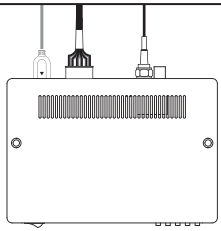
Get power input cable for battery connection

28



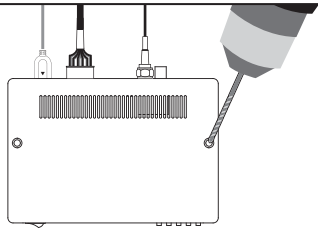
Match the power cables polarities to the battery polarities, red to red / back to black and yellow ignition cable to ignition port of the vehicle

29



Plug the other end of power input cable to the controller

30



Place the controller at where user wants with two(2) of M4 x 30 screws