

Point&Play Setup Manual for the Satellite Terminal

version 1.0

ref. nr.: 28298

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1 INTRODUCTION

1.1 About this Guide

This guide provides a step-by-step procedure to install your satellite terminal.

Before installing

Before starting to install your satellite terminal, it is important to read the following sections:

- Safety precautions (page 2)
- Material provided in the box (page 4)
- Material you need to provide yourself (page 6)

Follow the entire procedure

When installing the antenna, it is important that you follow the entire procedure step-by-step. Skipping one or more sections might lead to incomplete or incorrect installation and/or operation of your satellite terminal.

Related documentation

The satellite terminal documentation exists out of following:

- This document, providing a step-by-step procedure to install your satellite terminal and point your antenna;
- The Antenna Pointing Information, which contains the geographical pointing data (booklet included in the box);
- The User Manual for the Satellite Terminal, describing the features and the terminal web interface of the IPmodem;
- One CD, containing the three documents described above.

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1.2 Safety Precautions

This section lists the safety precautions to follow when installing the antenna. Safety precautions are grouped into warnings and cautions.

Local regulations

Always install the satellite terminal in accordance with applicable local regulations. Consult with a licensed electrician if in any doubt.

1.2.1 Warnings

A warning refers to an action or situation that could result in injury, long term health hazard or death if you do not follow the instructions.

Antenna

- RF radiation hazard: Hazardous electromagnetic field levels are generated in the area between the antenna reflector and the iLNB feed horn during transmission. Do not place any part of your body in that zone while the system is on. Take the necessary precautions to prevent access to the antenna by children or unauthorized persons.

IPmodem

- There are no user-serviceable parts in the IPmodem. Do not attempt to open the system. There is a risk of electrical shock that may result in injury and death. The IPmodem should only be opened by a technician trained and certified to service the product.
- To prevent the risk of fire or electrical shock, do not expose the indoor equipment to rain, liquids or moisture. Do not place any objects containing liquids (e.g. glasses, vases) on the system.
- Do not install the antenna and IPmodem when there is a risk of thunderstorm or lightning activity in the area.
- Do not use the in-line power supply power cord when damaged in any way.

1.2.2 Cautions

A caution refers to an action or situation that could result in equipment damage or destruction if you do not follow the instructions.

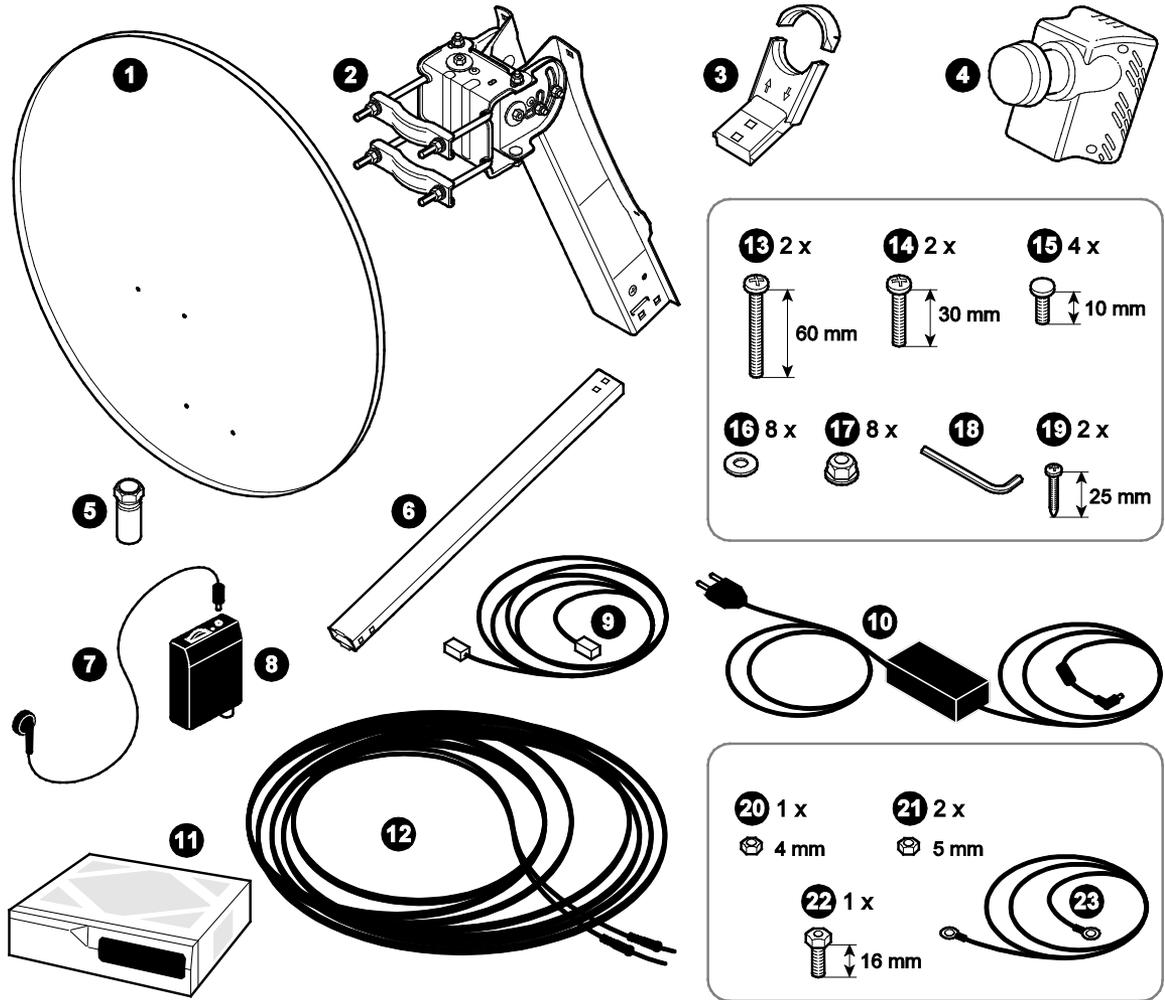
IPmodem

- Always use the in-line power supply included with the IPmodem. Using a different power supply may cause equipment damage.
- To ensure regulatory and safety compliance, use only the provided power and interface cables or cables conform to the specifications within this manual.
- Do not open the unit. Do not perform any servicing other than described in the installation instructions. Refer all other servicing to qualified service professionals.
- Static electricity can damage the Astra2Connect modem. To avoid damaging the IPmodem with static electricity, always touch the grounded coaxial cable connector prior to touching any other part of the system.
- To clean the outside of the unit, use a clean, dry cloth. To avoid equipment damage, never clean the system using fluids, detergents or chemicals. Do not use pressurised air to remove dust from the unit.
- Install an AC surge arrestor in the AC outlet to which the IPmodem is connected to avoid damage to the equipment from lightning strikes and other electrical surges.
- To prevent overheating, do not block the ventilation holes on the sides and top of the unit.

Point&Play® tool

- To avoid damage to your hearing, ensure that the volume of the Point&Play® tool is not set too loudly.

1.3 Material Provided in the Box

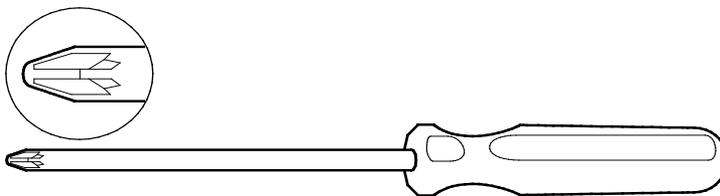


Material provided in the box: list

Number on figure	Item	quantity	Number on figure	Item	quantity
1	Satellite dish	1	12	Twin coax cable	1
2	Masthead	1	13	Screw 60mm M6	2
3	iLNB clamp	1	14	Screw 30mm M6	2
4	iLNB	1	15	Screw 10mm M6	4
5	F-connectors	5	16	Washer M6	8
6	Feed arm	1	17	Hex nut M6	8
7	Headphone	1	18	Hex key	1
8	Point&Play® tool	1	19	Screw 25mm M3.5	2
9	Network (Ethernet) cable	1	20	iLNB grounding nut M4	1
10	Power adapter	1	21	Masthead grounding nut M5	2
11	IPmodem	1	22	Grounding screw 16mm M5	1
	CD and documentation		23	Grouding wire	1

1.4 Material you need to provide yourself

- A solid base for the antenna, made of concrete or firmly attached to a wall;
- An antenna pole;
- A Phillips head screwdriver PZ2;



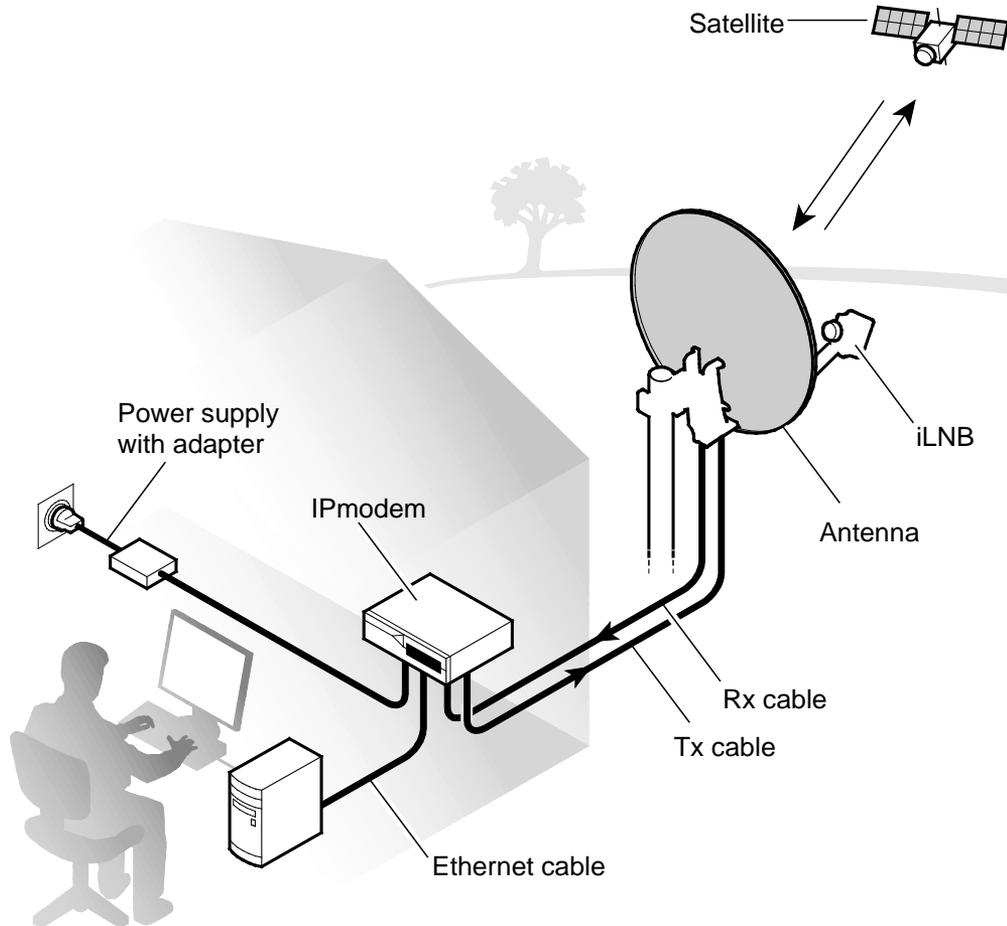
- Open-end spanners of 8, 10, 11 and 12mm;



- Tie-wraps;
- A cutter;
- A reliable compass;
- A spirit level;
- Geographical pointing data, available in the Antenna Pointing Information document.

1.5 Installation Overview

The image below shows the result of a typical installation as described in the following pages. Please read these pages carefully and follow the step-by-step procedure to execute the installation.



2 INSTALLING YOUR SATELLITE TERMINAL

2.1 Step 1: Choosing a suitable Location

Outdoors: antenna

- When setting up the antenna base, take account of the **orientation** the antenna must have. Orientation data are available in the **Antenna Pointing Information document**.
- The antenna needs a **clear view** towards the satellite (without any buildings, trees... that may hinder the signal).
- To connect the antenna to the IPmodem, you will use a coax cable. You can use the provided coax cable or a coax cable with the same specifications as described in the **Terminal User Manual** on the CD.
- The coax cable connecting the antenna to the IPmodem must not exceed 30 meters. The coax cable included in the box is 30 meters long.

About your satellite terminal

For more information on the satellite terminal, refer to the section 'Getting to know your Satellite Terminal' in the User Manual for the Satellite Terminal (available on the CD included in the box).

Indoors: IPmodem and computer

Put the IPmodem in a dry room.

Indoors, you will need to connect the IPmodem:

- To the antenna (with the coax cable);
- To your computer (with a network cable). You can use the network cable provided in the box or a cable of your choice (for example if you need a longer cable to connect the IPmodem to your computer);
- To a wall outlet (with the power adapter provided in the box).
Power adapter specifications: universal input range 100-240 Volt, 50-60Hz.

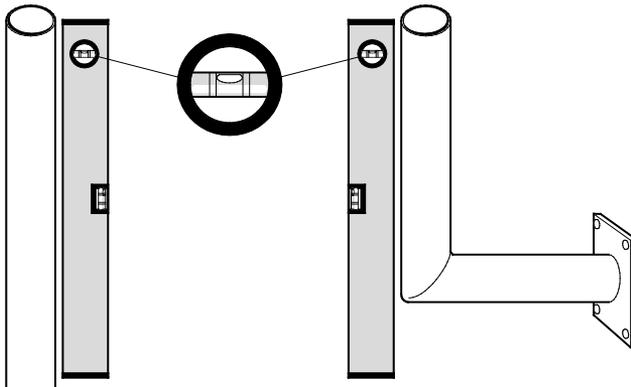
These steps are described further in this document.

2.2 Step 2: Mounting the Antenna Pole

Antenna pole requirements

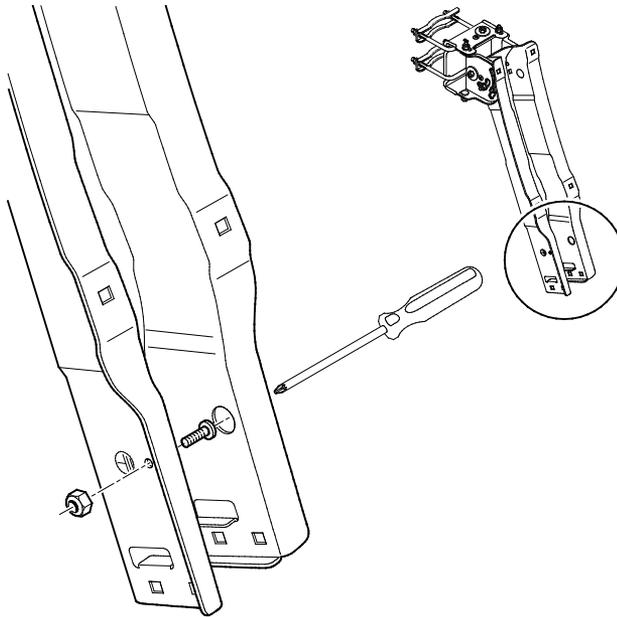
- The antenna pole must be installed on a solid base and made of galvanised steel.
- Minimum diameter: 45mm (60mm recommended).
- Maximum diameter: 70mm.

When fixing the antenna pole on the base, use a spirit level to make sure the antenna pole stands upright.



2.3 Step 3: Installing the Earthing Kit on the Masthead

1. Take the M5 grounding screw from the grounding kit and put it through the earthing hole in the masthead from the inside, as indicated in the picture below. Verify that the earthing symbol is present next to the earthing hole.
2. Take one of the M5 masthead grounding nuts, and tighten it using a Phillips (PZ2) and a 8mm spanner.



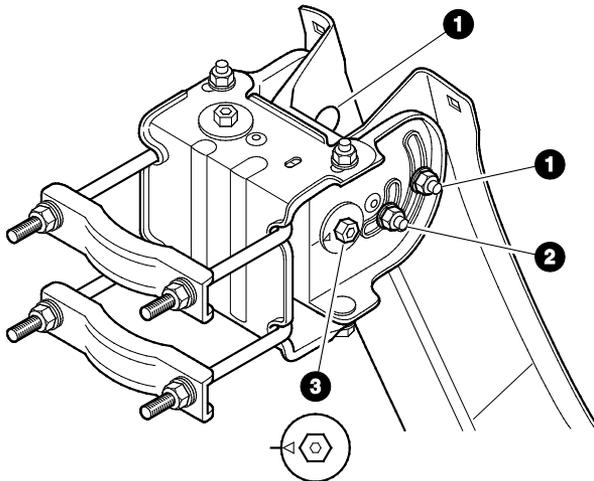
This completes the installation of the earthing kit on the masthead. The remaining items of the grounding kit will be used later on, when grounding the iLNB. You can now proceed to step 4.

2.4 Step 4: Setting the Elevation Angle

1. In the Antenna Pointing Information document, first check the elevation for the city closest to your location. In the example below, this value is 40°.

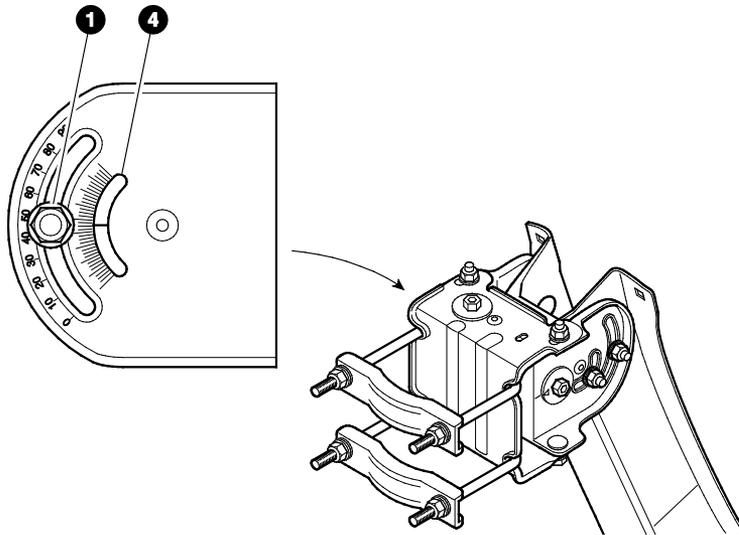
City / Island	Elevation (°)
Your Country	
Satellite City	40

2. Loosen all elevation nuts (1) and (2) (three nuts in total) on the masthead using a 10mm open spanner.



3. Make sure the elevation fine adjustment bolt (3) is pointing to the middle position (arrow pointing to the middle marker). If not, adjust with a 10mm spanner or the included hex key until this is the case.
4. Using the elevation scale (4) on the left side of the masthead, set the elevation angle to the value you have found in the Antenna Pointing Information document, and tighten nut (2) to fix the elevation angle.

Note: the elevation scale is located on the left side of the masthead, nut (2) is located on the right side of the masthead.



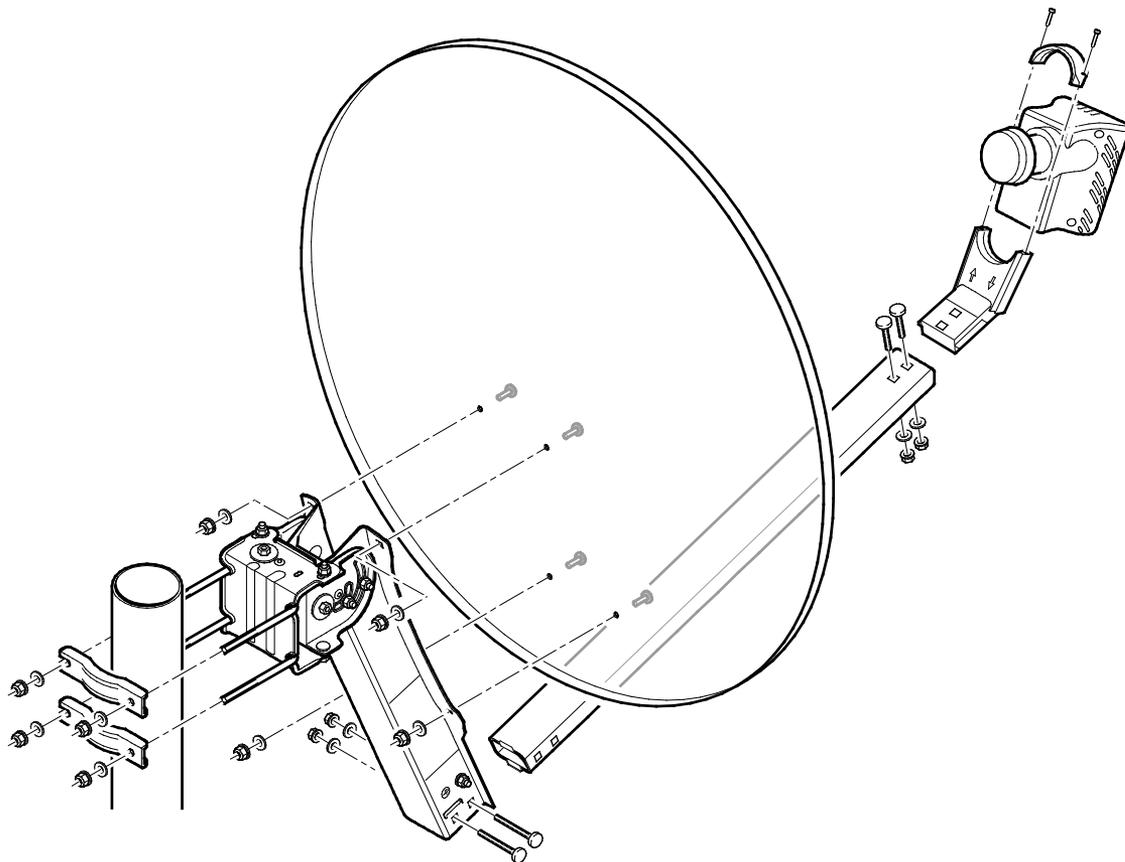
Note: this nut must be tightened very strong, as the elevation position should not move when mounting the antenna later on.

This completes the setting of the elevation angle. The two other elevation nuts (1) (one on either side of the masthead) should not yet be tightened, as some fine-pointing still needs to be done later on. You can now proceed to step 5.

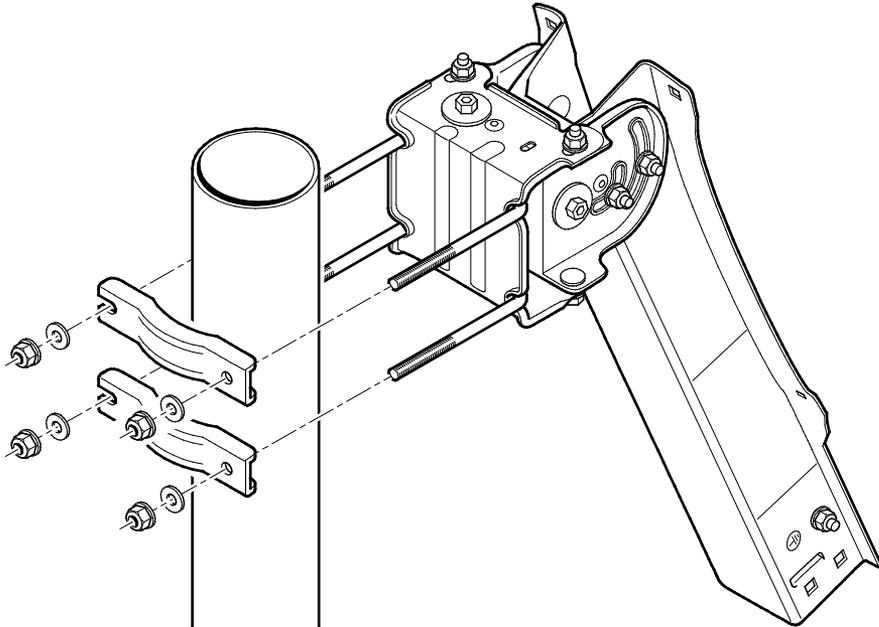
2.5 Step 5: Mounting the Antenna

Now the rest of the antenna can be mounted, as shown in the next overview picture.

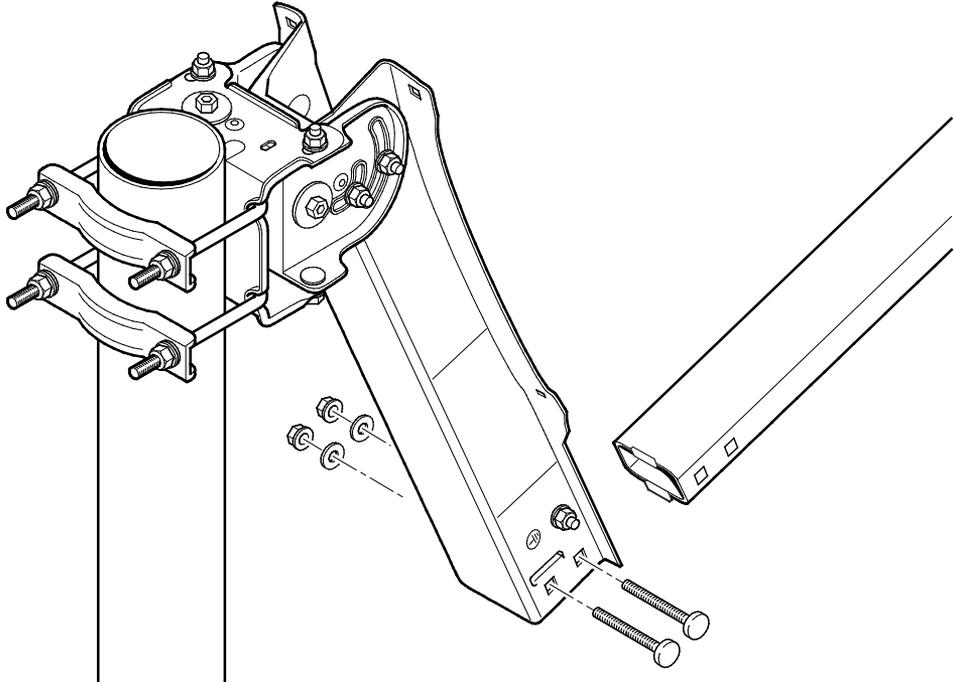
For easy installation, please follow the sequence described on the next pages.



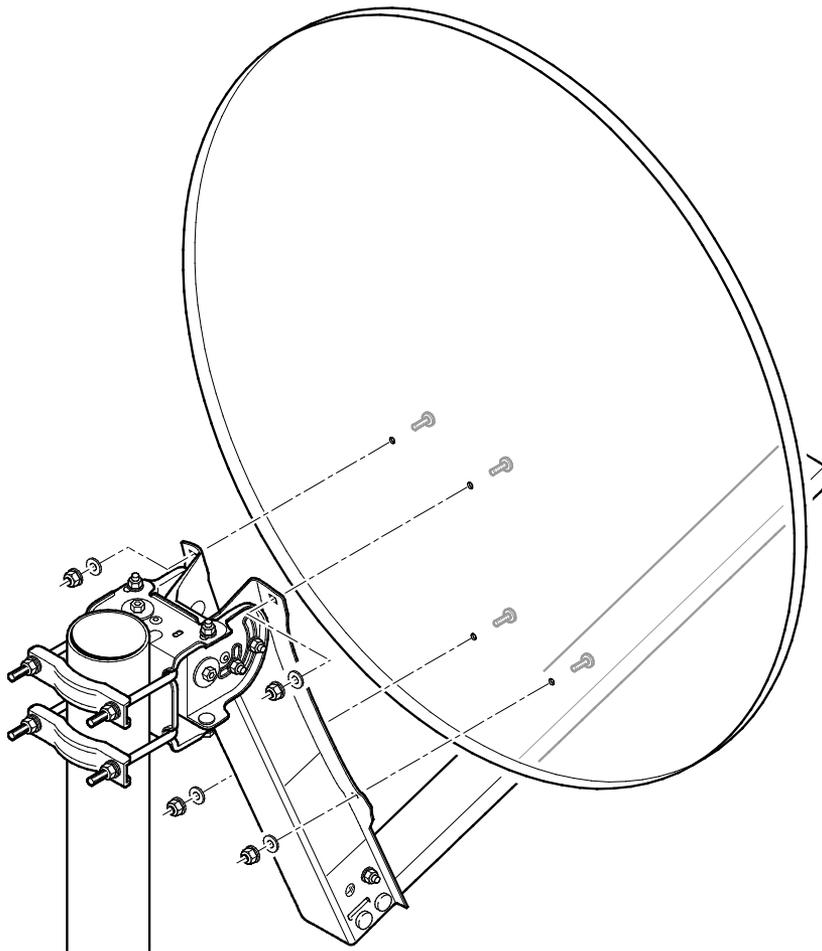
1. First mount the masthead to the antenna pole.
The clamps, pole brackets, M8 nuts and washers are pre-mounted on the masthead. Loosen or unmount if required to install the masthead onto the pole. Hand-tighten the nuts making sure the masthead can still be rotated around the pole.



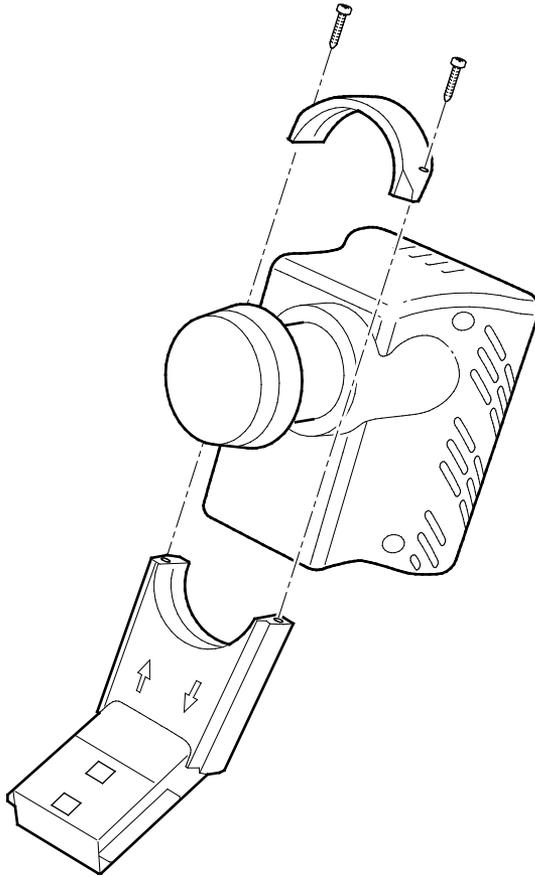
2. Then mount the feed arm onto the masthead.
The two bolts (60mm), nuts and washers can be found in the accessory bag.



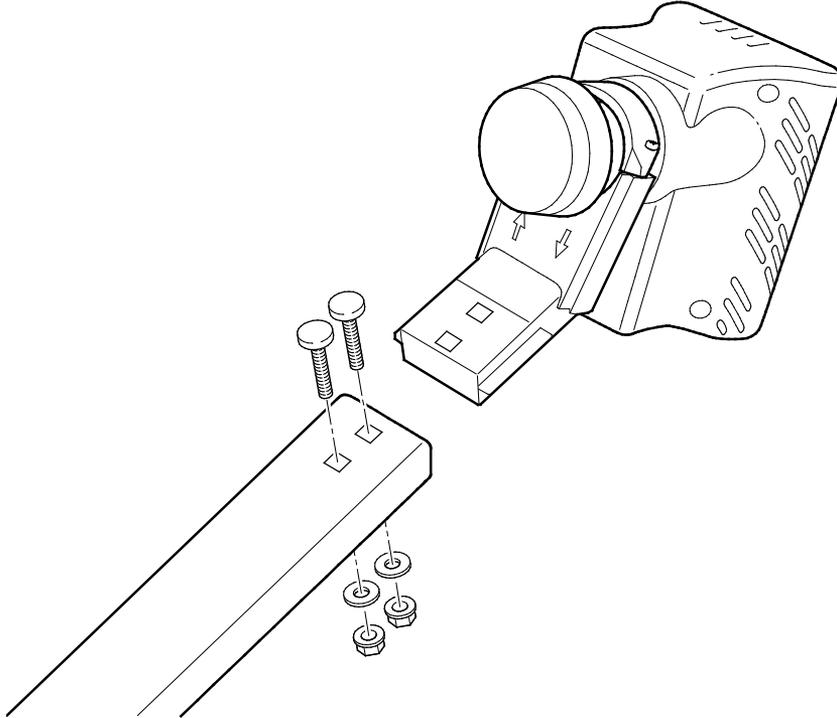
3. Afterwards mount the antenna dish onto the masthead.
The four bolts (10mm), nuts and washers can be found in the accessory bag.



- Next mount the iLNB into the feed clamp.
The two M3.5 screws (25mm) can be found in the accessory bag.



5. Finally mount the feedclamp (with iLNB) onto the feed arm.
The two bolts (30mm), nuts and washers can be found in the accessory bag.



This completes step 5. You can now proceed to the next step: fixing the antenna cabling.

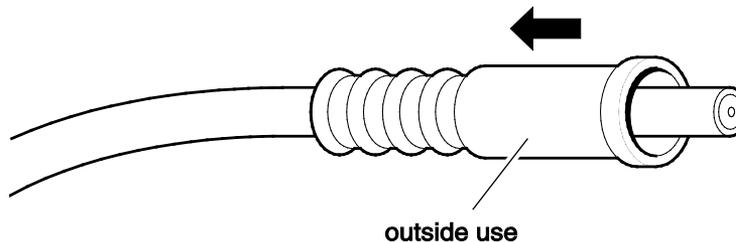
2.6 Step 6: Fixing the Antenna Cabling

2.6.1 Connecting the F-connectors on the Coax Cable

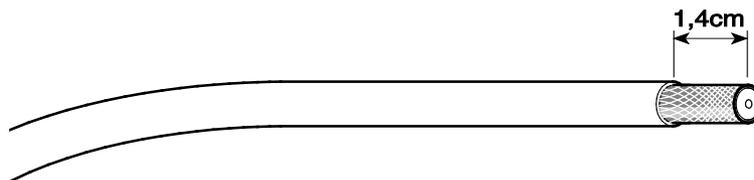
If the connectors are not yet attached to your cable, execute following steps to attach them yourself.

You will need a cutter (and possibly pliers) to connect the F-connectors. To connect an F-connector to a cable:

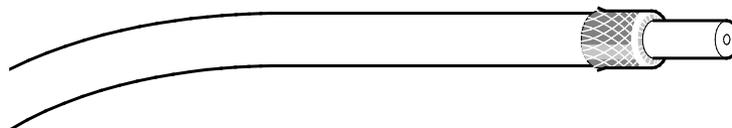
1. For the outdoor end of the cable, first slide the rubber boots over the coax cable.



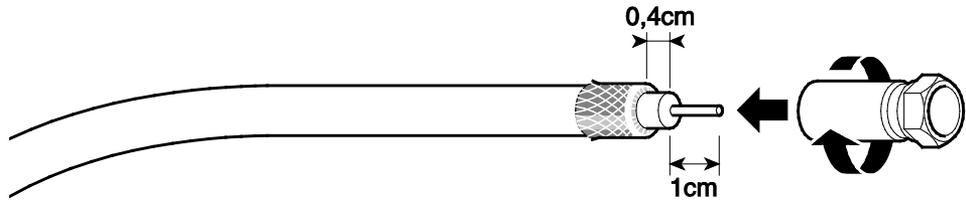
2. Strip the coax cable as shown below. Do not remove the aluminium foil or fold it back.



3. Fold the wire shielding backwards over the cable jacket.



4. Cut away the plastic shield. The result should look like the following figure (example showing the indoor end of the cable).
5. Screw the F-connector to the wire by hand.

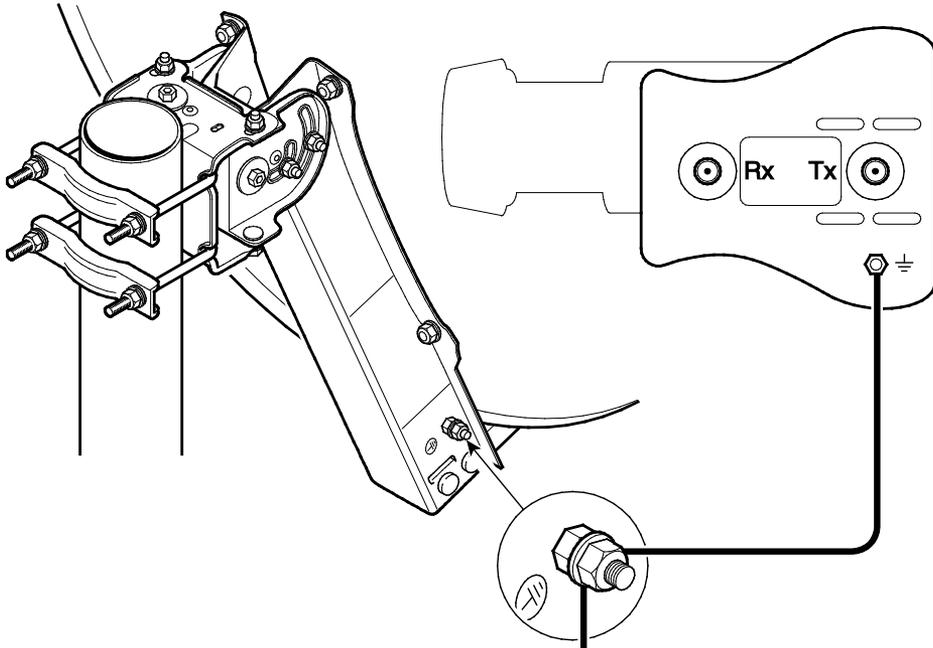


Repeat this procedure for all F-connectors not yet attached.

2.6.2 Grounding the iLNB

1. Connect the grounding wire to the stud on the iLNB using the iLNB grounding nut, which can be found in the grounding kit bag.
2. Connect the other side of the grounding wire to the grounding screw on the masthead using the second masthead grounding nut.
3. The masthead needs to be grounded according to local regulations. Consult with a licensed electrician if in any doubt.

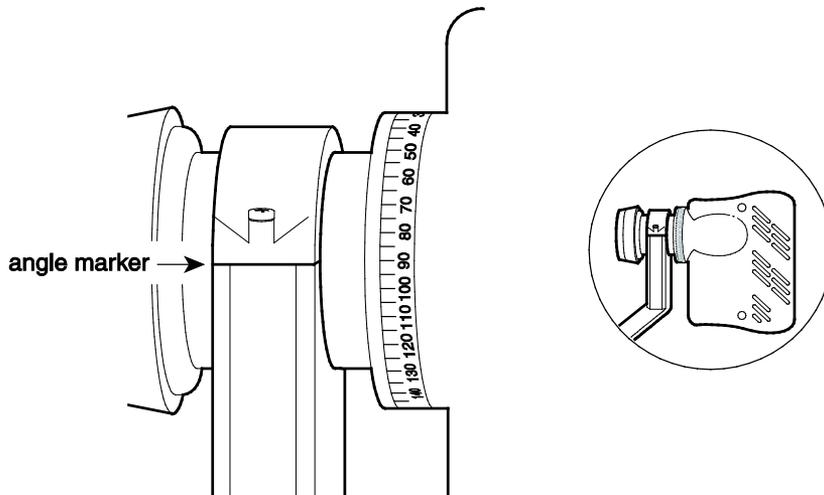
The result should look like the figure below:



2.7 Step 7: Adjusting the iLNB Polarisation

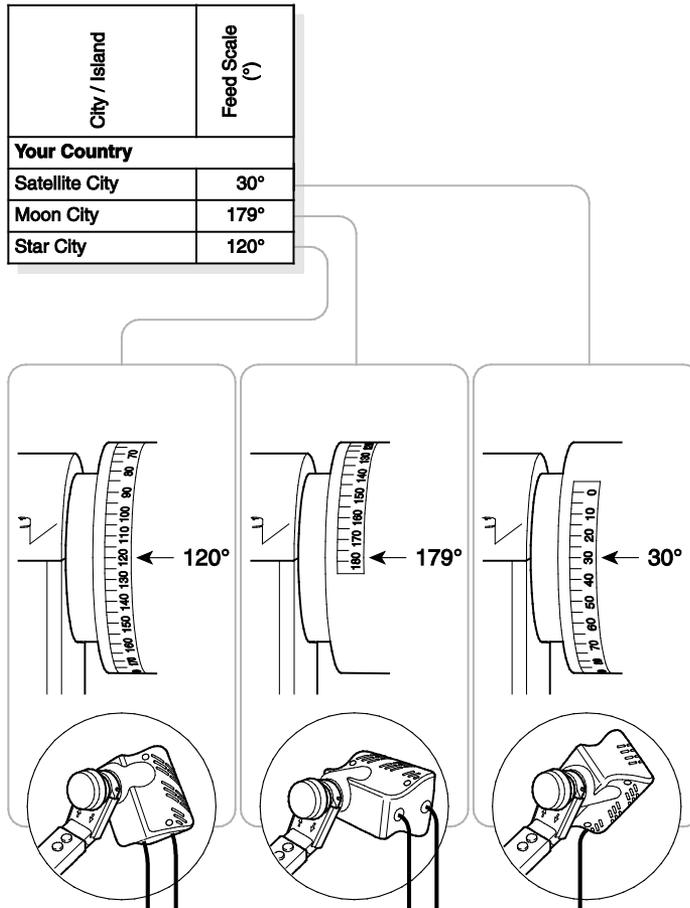
Polarisation of the iLNB allows correct data reception and transmission.
To adjust iLNB polarisation:

1. Identify the angle marker on the iLNB feedclamp as pointed out in the picture below. The angle marker is in fact the line that separates the top and bottom part of the feedclamp.



2. In the Antenna Pointing Information document, look up the feed scale value that applies to the city closest to your position.
An example for three cities is shown in the table below.
3. Loosen the two M3.5 bolts and set the iLNB to the angle you have found in the document.

In the picture below you can see the different iLNB positions for the three cities from the example.



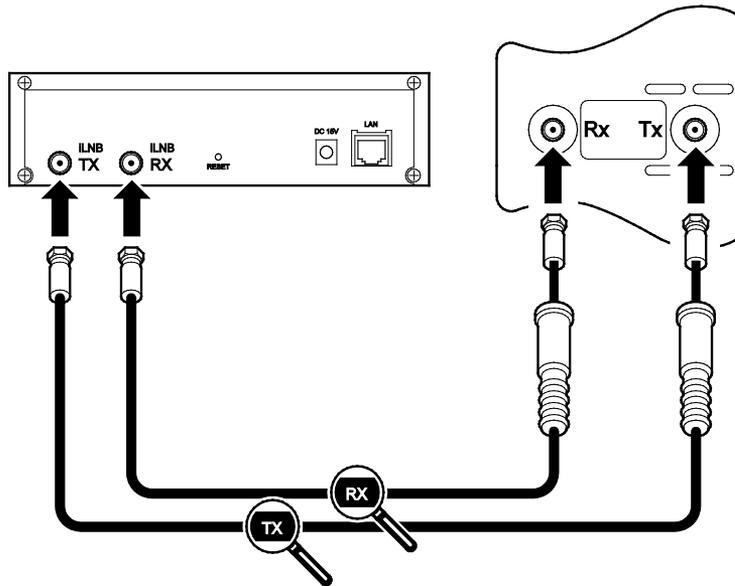
4. Lock the iLNB in the clamp by securing the two M3.5 bolts.

2.8 Step 8: Connecting the IPmodem

2.8.1 Connecting the IPmodem to the iLNB

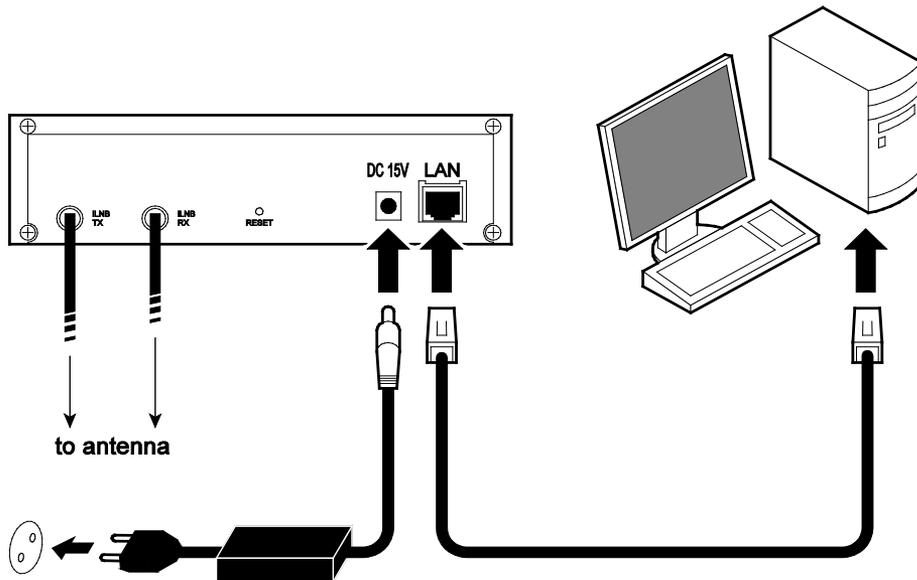
To connect the IPmodem to the iLNB:

1. Identify the cables marked TX and RX on the coax cables (these marks are printed on the cables every 50cm).
2. Put the TX and RX connectors in the appropriate TX and RX jacks on the iLNB. Make sure to use the outdoor connectors (with rubber boots) for the iLNB. The outdoor connections need to be waterproof.
3. Put the indoor TX and RX connectors in the appropriate TX and RX jacks on the IPmodem. The TX cable will have to be disconnected again later during the installation. Use an 11mm spanner to fasten the connectors on the IPmodem.



2.8.2 Connecting the IPmodem to your Computer

1. Plug the network cable in the IPmodem's and your computer's Ethernet ports. You can use the network cable provided in the box or a cable of your choice.
2. Connect the power adapter provided in the box gently to the IPmodem and a wall outlet. The result should look like the figure below.



3 POINTING YOUR ANTENNA

Attention

Do not stand in front of the iLNB of the antenna dish during pointing. Keep the space between the iLNB and the antenna dish clear.

3.1 Step 1: Enabling Pointing Mode on the IPmodem

Before you start

The procedure below assumes:

- that your computer is DHCP enabled;
- that you will connect a single computer to the IPmodem.

If this is not the case or if you have another configuration, you will find more information in the User Manual for the Satellite Terminal on the CD, in Appendixes Local Network Configuration and Changing your IP settings.

Before pointing the antenna, you need to access the status page of the IPmodem.

- Make sure the IPmodem is turned on and properly connected to your computer (with a network cable).
- On your computer, start your internet browser (for example, Internet Explorer, Chrome, Mozilla Firefox, Opera, Safari...).
The status page is located on the IPmodem itself. You do not need an internet connection to access this page.
- Type 192.168.1.1 in the address bar of the browser and press Enter.
The status page opens.
- Depending on your situation:
 - If the status page contains a list with more than one pointing carrier, keep the preselected carrier. If pointing fails during the procedure, you will need to select the other pointing carrier in the list and restart the entire procedure.

Pointing

Click the Start Pointing button to start the pointing procedure.

Do not start pointing without pointing documentation!

When asked by your service provider, change the pointing carrier below.

Pointing Carrier 1 : 10.8912500 GHz, 22.0000 MBaud
 Pointing Carrier 1 : 10.8912500 GHz, 22.0000 MBaud
 Pointing Carrier 2 : 11.0000000 GHz, 22.0000 MBaud

Click the Skip Pointing button to skip the pointing procedure.

- If the satellite has only one pointing carrier, you will see the page below.

Newtec SHAPING THE FUTURE OF SATELLITE COMMUNICATIONS Air MAC address: 00:06:39:82:53:db

Ethernet Satellite Software

Menu

- Status
- Configuration
 - Ethernet Interface
 - Satellite Interface
 - Multicast
- Device
 - Software
 - Hardware
 - Antenna Pointing
 - Test

Status

Overview

Modem State: Error 001 - Awaiting installer action
Software Version: 1.9.8.0

Pointing

Click the Start Pointing button to start the pointing procedure.

Do not start pointing without pointing documentation!

Click the Skip Pointing button to skip the pointing procedure.

- Click the **Start Pointing** button.
You can now proceed to step 2: Setting up the Point&Play tool.

Note

Whenever you redo the pointing procedure select **Antenna Pointing** in the menu bar. The button will be labelled **Restart Pointing** instead of **Start Pointing**.

3.2 Step 2: Setting up the Point&Play Tool

3.2.1 Introduction

The Point&Play® Tool will help you point the antenna correctly. During the pointing procedure, the Point&Play® Tool can produce various sounds, each having a specific meaning described below.

You will thus need to put on the headphone whenever needed during the pointing procedure.



Ensure that the volume of the Point&Play® tool is not set too loudly, otherwise damage to your hearing may occur.

Possible tones are:

- High uninterrupted tone (correct tone)

The antenna points to the correct satellite and is receiving the strongest signal: you have the optimal pointing position.

- Higher interrupted tone

The antenna points to the correct satellite but does not receive the strongest signal so far. As soon as you hear this tone, you are sure that the antenna points to the correct satellite.

- Low uninterrupted tone

The antenna points to a wrong satellite and receives the strongest signal so far.

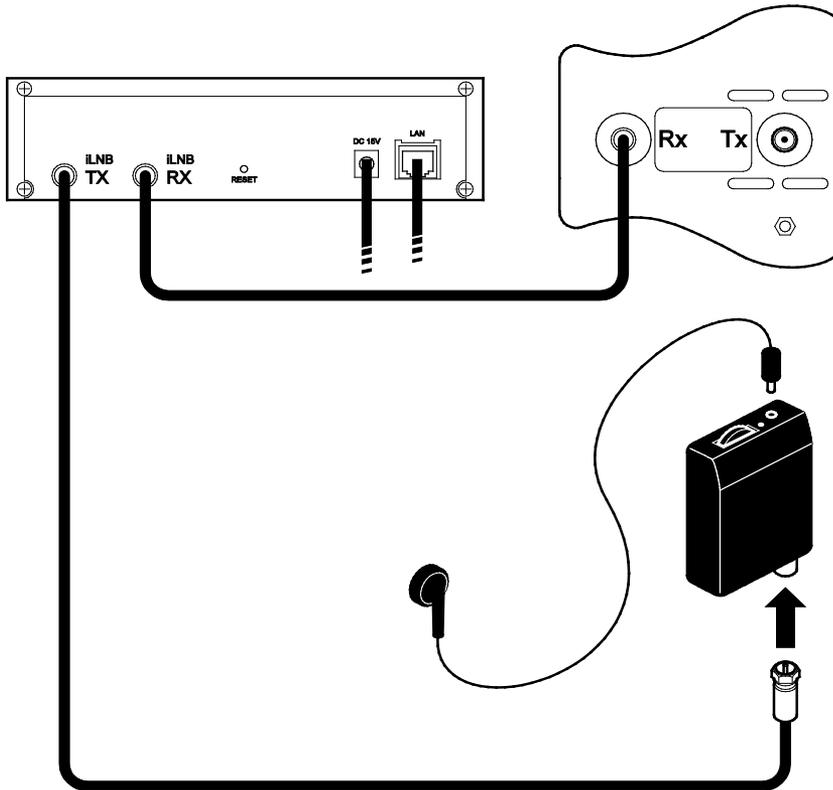
- Very low uninterrupted tone

The antenna is not pointing to a satellite and has not been pointing to the correct satellite yet.

3.2.2 Using the Point&Play Tool

To set up the Point&Play tool:

1. Remove the TX connector from the iLNB and connect it to the Point&Play tool.
2. Connect the headphone to the appropriate port of the Point&Play tool.
3. Make sure the Point&Play tool is turned on and the volume is high enough.



3.3 Step 3: Rough Pointing

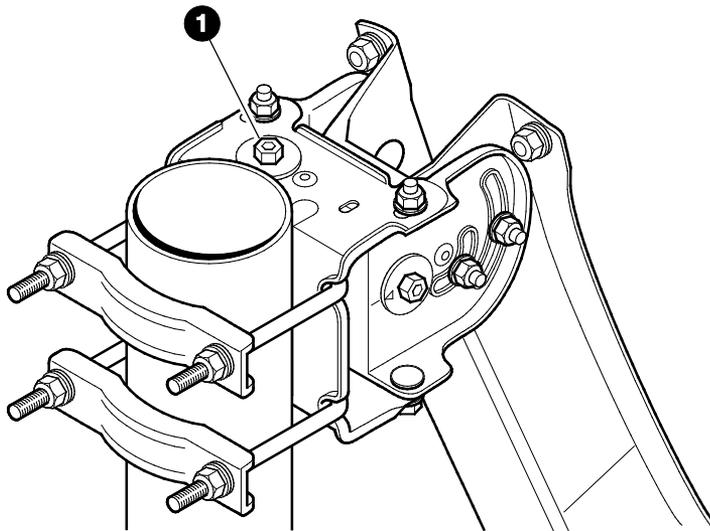
Important note:

Whenever the procedure tells you to loosen a securing bolt or nut, slacken it just enough to allow the corresponding element to move freely.

3.3.1 Horizontal Pointing

Before starting the horizontal pointing (azimuth), verify that the azimuth fine adjust bolt (1) is in the middle position. Adjust with a 10mm spanner if necessary.

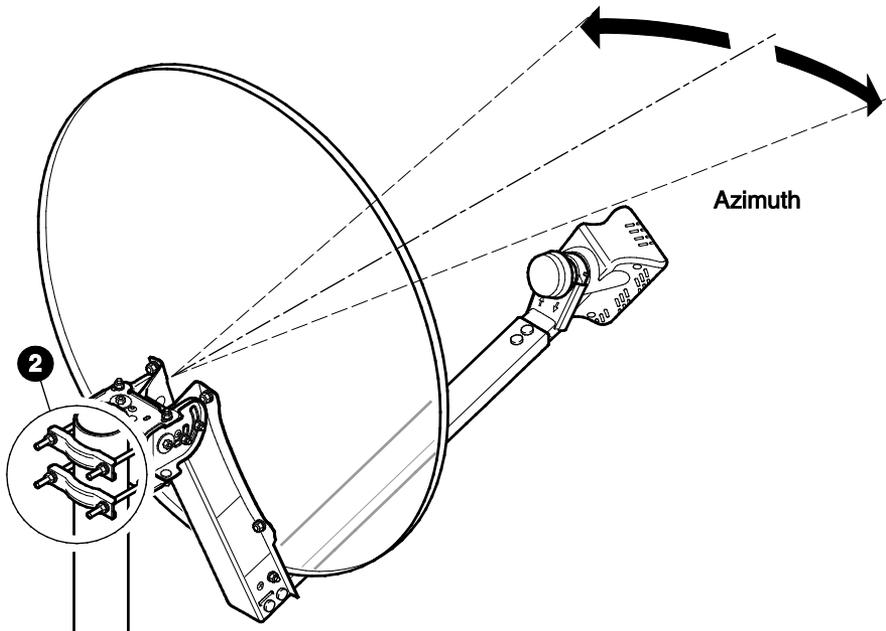
Note: for sake of clarity, the antenna dish is not shown on the picture below.



If the Point&Play tool is set up correctly, a low tone is received in the earphone. Now the actual pointing procedure can start.

1. Loosen the four M8 bracket nuts (2).
2. You can now move the antenna horizontally. Set the antenna to the average azimuth angle for your country as shown in the Antenna Pointing Information document. Use a compass if required.

Attention: for correct functioning of the compass, do not use it closer than 1.5 meter from metal parts.



3. Slowly move the dish horizontally until you hear the highest possible continuous pitch tone (detection of the correct satellite). Make sure you position the antenna in the middle of this highest tone range.

4. Secure the four M8 bracket nuts (2) using a 12mm spanner. Do this in an alternating sequence in order to keep the highest pitch tone.

No Tone

Check if your battery is not dead.

Persistent low pitch

If you keep hearing a low pitch tone, this might indicate one of the following issues:

- Check if you have a clear line of sight, and no building, tree or other obstruction is blocking the path between the antenna and the satellite. Select a place with clear line of sight to set up the antenna. Also check if your compass is functioning correctly.
- The pointing carrier selected in the IPmodem status page is not correct.
If so, on the IPmodem status page on your computer:
 - Click Pointing completed
 - Select Antenna Pointing in the menu bar.
 - Click Restart Pointing.
 - Select the other pointing carrier in the list and restart the entire pointing procedure.
- It is indicated on the status page when you are pointed to the correct satellite. The antenna might be pointing to the wrong satellite.
If so, you need to:
 - repoint the antenna until you receive a signal;
 - perform the horizontal and vertical pointing steps until the antenna is pointed correctly towards the satellite.

3.3.2 Vertical Pointing

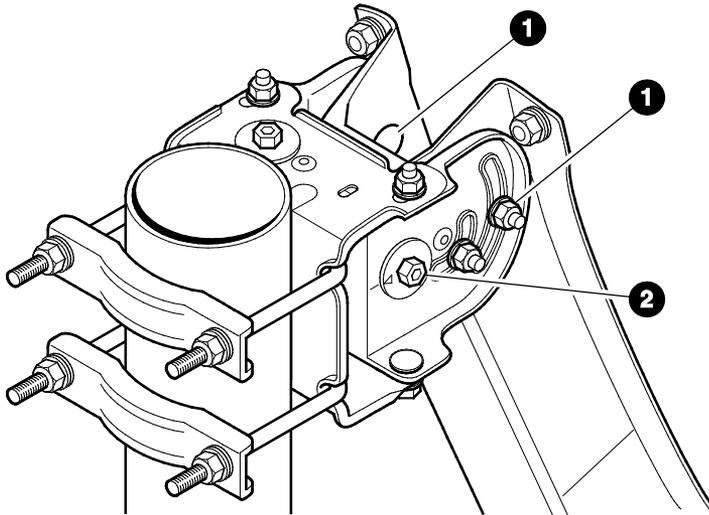
The correct elevation angle was already set during the installation of the antenna (refer to chapter 2.3).

Verify that the elevation angle of the masthead still corresponds to the value you found in the Antenna Pointing Information document, and that it has not changed during the assembly of the antenna (e.g. due to the weight of the antenna dish). Adjust if necessary.

3.4 Step 4: Optimise Vertical Pointing (Elevation)

1. Loosen the two elevation bolts (1) (**one on either side of the masthead**).

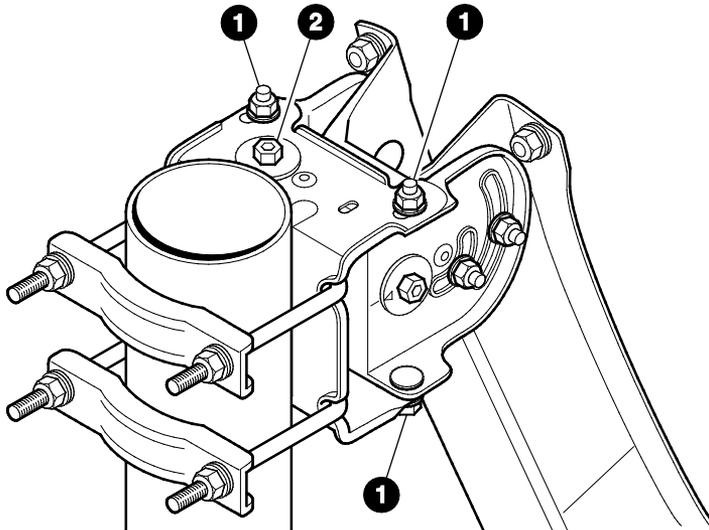
Note: for sake of clarity, the antenna dish is not shown on the picture below.



2. Optimise the elevation setting by rotating the elevation fine adjust bolt (2), using a 10mm spanner, until the Point&Play tool produces the highest continuous pitch tone.
3. Secure the two elevation bolts (1) in an alternating manner to keep the highest pitch tone.

3.5 Step 5: Optimise Horizontal Pointing (Azimuth)

1. Loosen the four azimuth bolts (1) (two at the top of the masthead, two at the bottom).



2. Optimise the azimuth setting by rotating the azimuth fine adjust bolt (2), using a 10mm spanner, until the Point&Play tool produces the highest continuous pitch tone.
3. Secure the four azimuth bolts (1) in an alternating manner to keep the highest pitch tone.

3.6 Step 6: Checking the Pointing

Perform the following checks to make sure the antenna will resist external movements (wind...):

1. Make sure all bolts are **tightly secured**.
2. Shortly place your hand between the iLNB and the dish. As soon as you remove your hand, you should hear the continuous high pitch tone again.
3. Apply some pressure on the antenna to make the edges move about 3cm on the left hand side, right hand side and at the top, then release it. If the antenna is still pointed correctly, you will hear the high pitch tone again. If not, repeat the pointing procedure from the **section 3.3 Rough pointing**.
4. When the antenna is correctly pointed, the message **Correct satellite – pointed optimally** is displayed on the screen of your computer, as shown in the following picture. You can now proceed to step 7.



Troubleshooting

If the content of the IPmodem status page does not change anymore, refresh the page manually (Internet Explorer: menu File > Refresh; Mozilla Firefox: menu View > Reload; Chrome > Refresh arrow...).

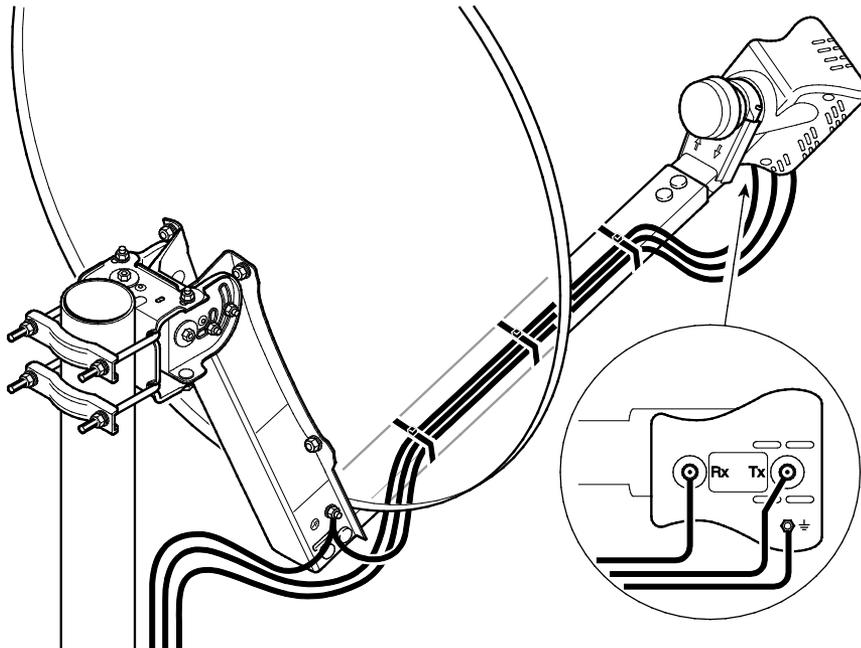
If the status page does not reload, reboot your IPmodem as described in the User Manual for the Satellite Terminal.

If you keep having problems with the installation, refer to the **User Manual for the Satellite Terminal** on the CD (Appendix - Troubleshooting Guide).

3.7 Step 7: Finishing the Installation

1. Turn off the Point&Play tool
2. Remove the TX cable from the Point&Play tool and connect it to the iLNB.
3. Slide the rubber boots over the connectors
4. Use tie-wraps to attach the cables to the feed arm. Make sure to leave some slack on the cables.

The result should look like the figure below:



5. Back at your computer, in the status page of the IPmodem, click the **Pointing Completed** button.

Pointing

Click the Pointing Completed button when your antenna is properly pointed.

Pointing Completed

Wait for ten minutes.

You are now ready to surf the internet.

On-line registration may be required. Please check with your Internet Service Provider.