

Dish Assembly and Installation Quick Guide

SW-20 Satellite Modem

Username:

Password:

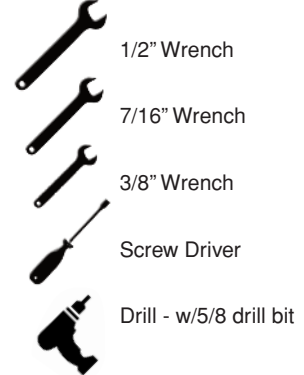
Checklist:

When you unpack your modem kit it should contain the following items. If any items are missing or damaged please contact the provider immediately.

- A. 1 x Dish
- B. 1 x LNBF Mounting Arm
- C. 1 x Coax Cable 25' and
1 x Coax Cable 75'
- D. 1 x SW-20 Satellite Modem
- E. 1 x Mounting Arm and
Base Plate Assembly
- F. 1 x 25' Ground Wire
- G. 1 x Dish Mounting Bracket
- H. 1 x Installation Kit
- I. 1 x Ethernet Cable
- J. 1 x LNBF
- K. 1 x Phone line
- L. 1 x Power Supply
- M. 1 x Sky Beeper
- N. 1 x Dish Mounting Pack
- O. 1 x Bubble Level

Tools Needed:

Before you unpack your modem kit, you should get the following tools ready:



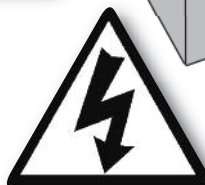
Dish Mounting Pack (N):

The following screws, nuts and bolts can be found in the Dish Mounting Pack (N).

- 1. Lower LNBF Clamp
- 2. Upper LNBF Clamp
- 3. 1/4-20 x 2 1/2" Bolt
- 4. 5/16-18 x 5/8" Flat Head Bolts (4)
- 5. 5/16-18 Hex Nuts (4)
- 6. 1/4-20 Hex Nuts (3)
- 7. 1/4-20 x 1" Carriage Bolts (2)
- 8. 10-32 x 1" Slotted Head Bolts (2)
- 9. 10-32 Hex Nuts (2)
- 10. #8 x 1" screws (2)

Installation Kit (H):

- 1. Copper Ground Strap
- 2. 14" Tie Straps (2)
- 3. 7" Tie Straps (5)
- 4. Lag Bolts (4)
- 5. Lag Anchors (4)
- 6. Coax Clips (10)
- 7. Compass
- 8. Feed Through Bushing
- 9. Silicon Sealer
- 10. Coax Ground Block
- 11. Ground Split Bolt



Static Electricity Warning

To prevent static damage to electronic components during installation, touch an anti-static or grounded surface such as a large metal object to discharge static before you remove the electronic components from their packaging.

Planning the Installation of the Dish

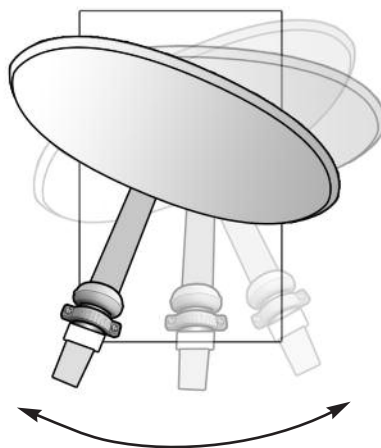
1

Understanding Azimuth and Elevation

In order to determine which direction the dish will point you will need the azimuth and elevation. To get these settings, go to www.dishpointer.com. Enter your zip code. Choose 105.0WAMC-15 from the drop down menu.

Then click on the **Obtain Azimuth and Elevation** link.

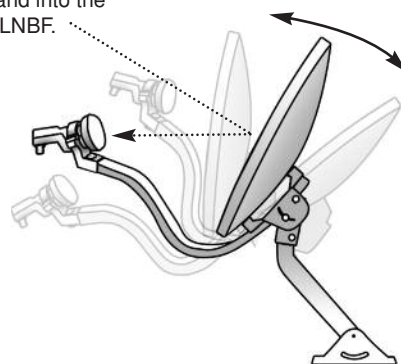
Here you will enter your zip code and the height of any object you need to clear to get the correct azimuth and elevation for your installation area. Record these numbers in the fields provided to the right. You will also need these numbers to plan and later install and align the dish for the correct signal.



Azimuth - Side-to-side direction that the dish is pointed.

Satellite Signal

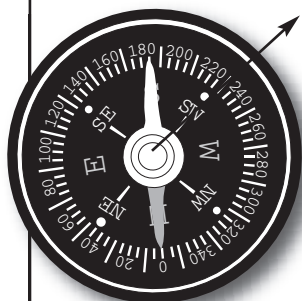
will bounce off of the dish and into the LNB.



Elevation - the up and down angle that the dish is tilted to.

2

Installation Plan — Based on your general site survey, you probably already know where you want to mount your dish, but it is a good idea to follow the procedures outlined in this section in order to make sure that the site you select is good.



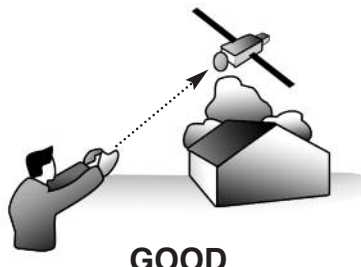
Note: Your Azimuth will vary depending on location

- Go to the location** that you plan on installing the dish. Get your compass and hold it level and still until the needle stops moving.
- Turn the compass** until the N is under the **Red** part of the **needle**. Keep in mind, your dish will be pointing in a southerly direction. Using the azimuth from step 1, locate the azimuth reading on the compass while keeping the arrow aligned to N. Position yourself so you are looking in the direction of the correct azimuth.
- Find a point of reference** like a tower, tree, mountain top, etc. that you can use as a guide when installing the dish that can help you with alignment.

Note: Careful not to get too close to the eaves.

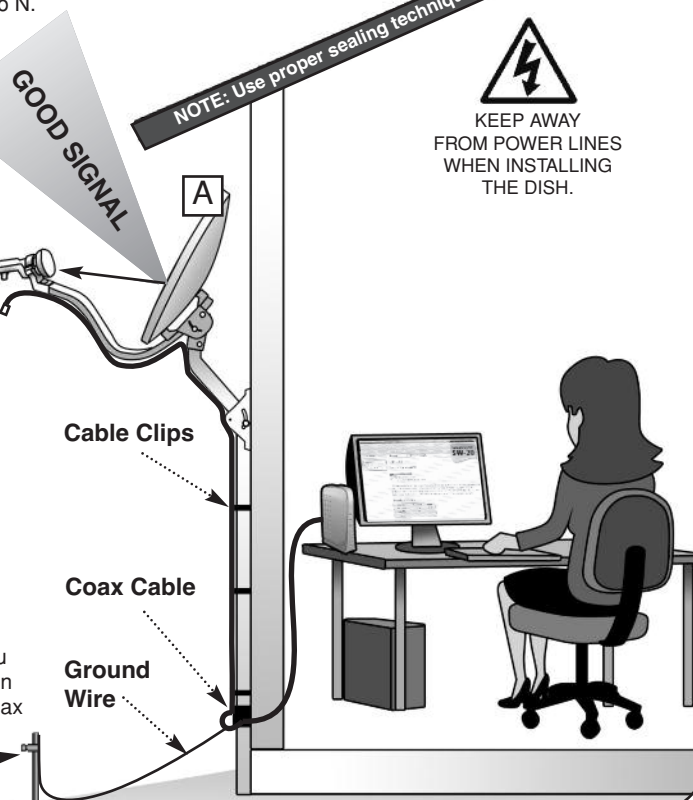
Make sure you anchor your dish, comfortably away from the eave or any overhang from your roof. The satellite signal can be blocked if this is too close. It is not recommended to mount dish to wooden posts, eaves or deck due to warping and slight movement as the wood ages.

(see illustration below)



- Using the elevation from step 1, raise your arm to approximate the elevation of the dish. Make sure there is a clear line of site with no obstructions to block the signal. If there is an obstruction, like a tree or building, it may necessary to move to a suitable location.
- Find the best place to enter the house with your cable.** Before you anchor your dish, establish where the computer will be stationed within your home. This will help you determine where and how to run the coax cable (C) through the exterior wall and into your home.

Ground Rod

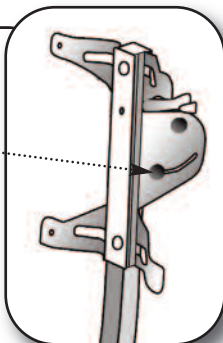
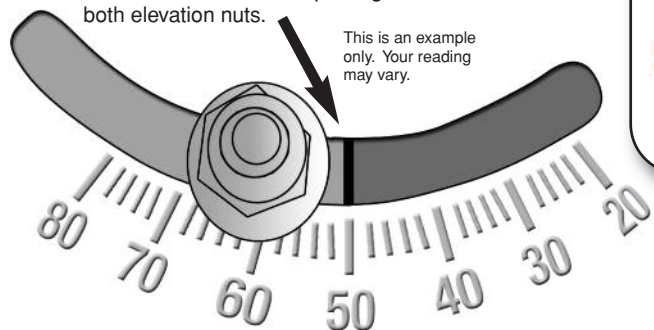


Dish Assembly

3

Set elevation on antenna.

Loosen the 2 elevation nuts on dish mounting bracket (G). Align red mark under slot with the elevation mark that matches the elevation recorded in step 1. Tighten both elevation nuts.



Elevation

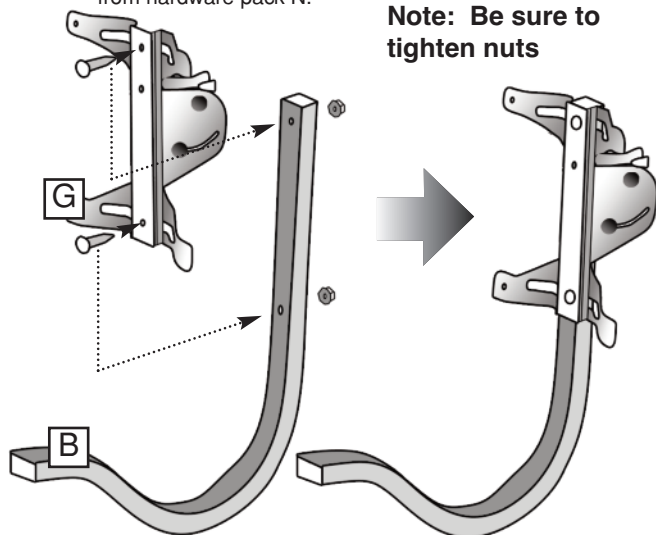
Make sure when setting the elevation that the indicator mark is used to set the elevation to the correct setting. The edge of the mark furthest from the locking nut is to be aligned with the correct setting. The elevation marks are laid out in increments of two. If, for example, the elevation was 52, then you would align the mark with the first mark past the 50. If the elevation was 51, you would align the mark halfway between the 50 and the first mark past 50. The illustration to the left in step 3 is a dish that is set to an elevation of 50. Your elevation setting will vary depending on your location.

4

Feed Support Assembly

To assemble the dish, attach the **LNBF Mounting Arm (B)** to the **Dish Mounting Bracket (G)** using the two 1/4-20 x 1 carriage bolts and the two 1/4-20 hex nuts from hardware pack N.

Note: Be sure to tighten nuts



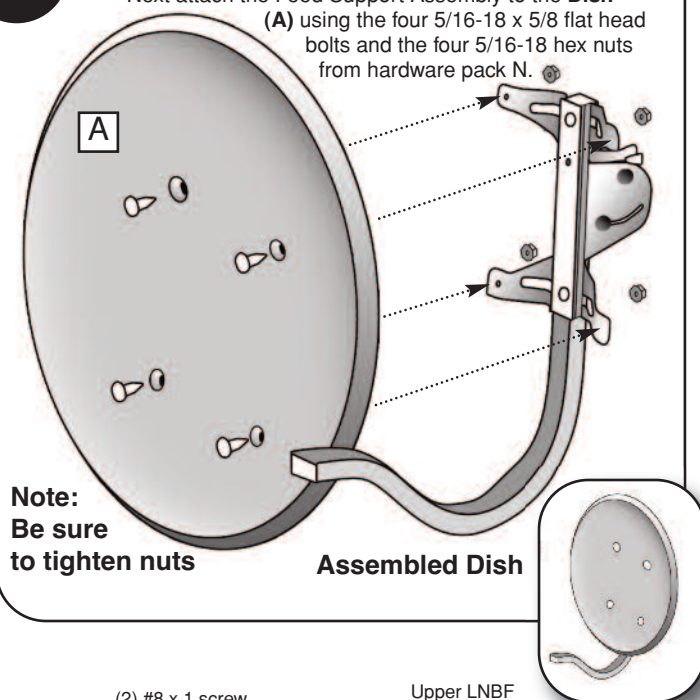
5

Attach Feed Support Assembly

Next attach the Feed Support Assembly to the **Dish (A)** using the four 5/16-18 x 5/8 flat head bolts and the four 5/16-18 hex nuts from hardware pack N.

Note: Be sure to tighten nuts

Assembled Dish



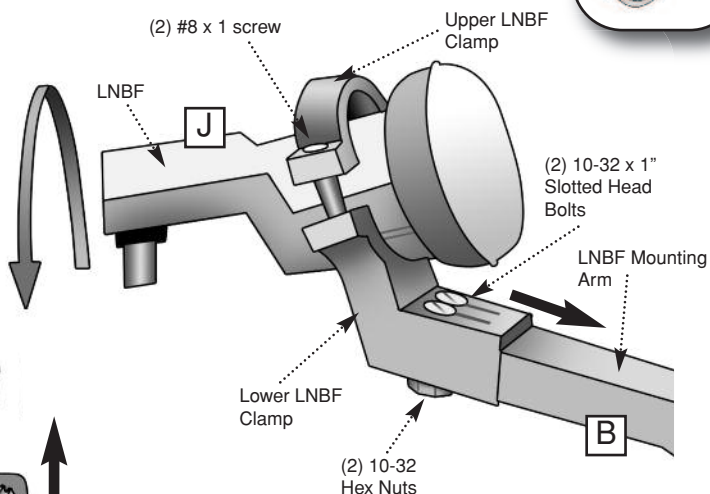
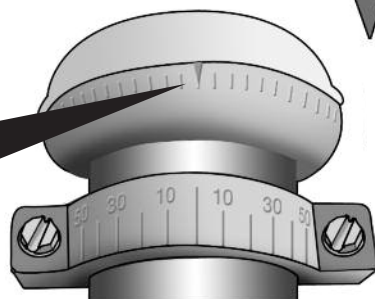
6

LNBF Settings

Attach the **Lower LNBF Clamp** to the **LNBF Mounting Arm (B)** and be sure to slide it down on the arm as far as the slots will allow. Secure the **Lower LNBF Clamp** to the LNBF Mounting Arm with the 2 10-32 x 1" bolts and 2 10-32 hex nuts. Place the **LNBF (J)** in the **Lower LNBF Clamp** with coax terminal end pointing away from the dish. Slide LNBF toward the dish as far as possible. Place the **Upper LNBF Clamp** over the LNBF and use 2 #8 x 1" screws to secure the LNBF to the **Lower LNBF Clamp**.

Adjust LNBF to zero and tighten the screws to secure LNBF.

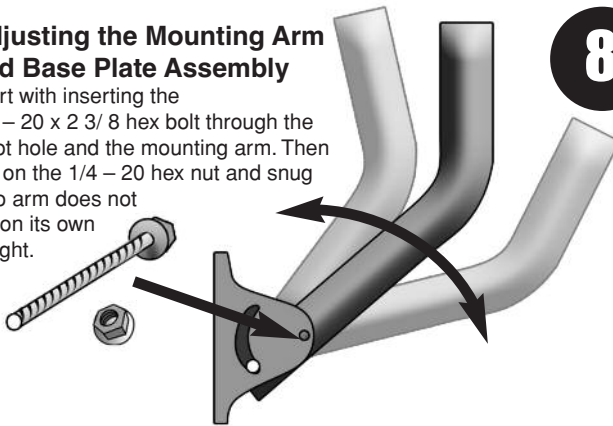
Set your LNBF to 0 degrees.



Installing the Dish

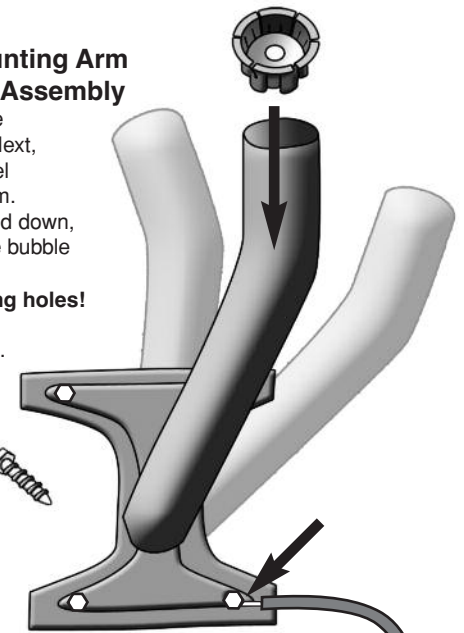
7 Adjusting the Mounting Arm and Base Plate Assembly

Start with inserting the 1/4 – 20 x 2 3/8 hex bolt through the pivot hole and the mounting arm. Then put on the 1/4 – 20 hex nut and snug it so arm does not fall on its own weight.



8 Setting the Mounting Arm and Base Plate Assembly

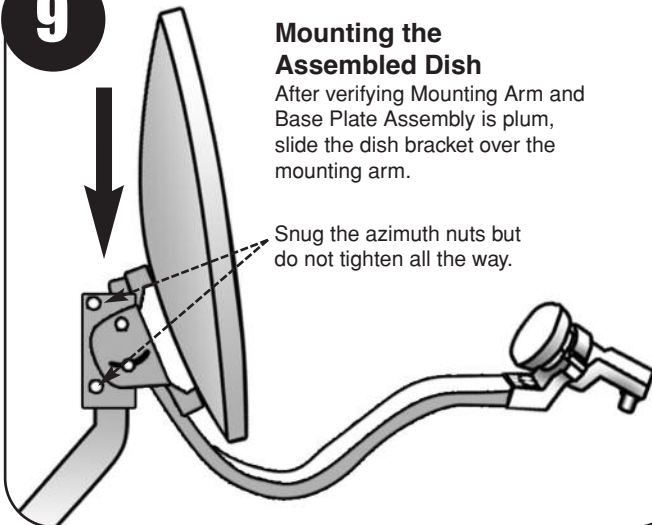
Attach the base plate with one lag screw. Next, insert the bubble level into the mounting arm. Adjust the arm up and down, left and right until the bubble level is centered. **Mark the 3 remaining holes!** Then insert the remaining 3 lag bolts. At this point the bubble level should be checked again that it is centered and all nuts locked.



9 Mounting the Assembled Dish

After verifying Mounting Arm and Base Plate Assembly is plum, slide the dish bracket over the mounting arm.

Snug the azimuth nuts but do not tighten all the way.



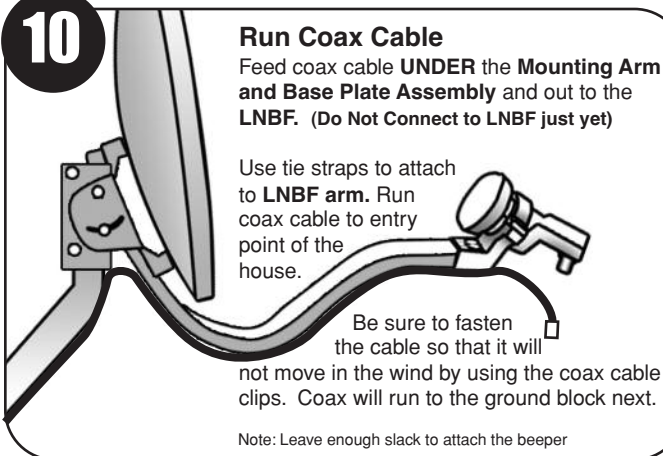
10 Run Coax Cable

Feed coax cable **UNDER** the Mounting Arm and Base Plate Assembly and out to the LNBF. (Do Not Connect to LNBF just yet)

Use tie straps to attach to LNBF arm. Run coax cable to entry point of the house.

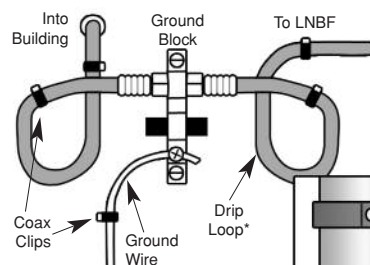
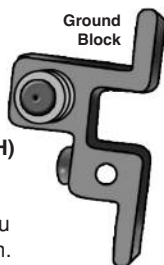
Be sure to fasten the cable so that it will not move in the wind by using the coax cable clips. Coax will run to the ground block next.

Note: Leave enough slack to attach the beeper



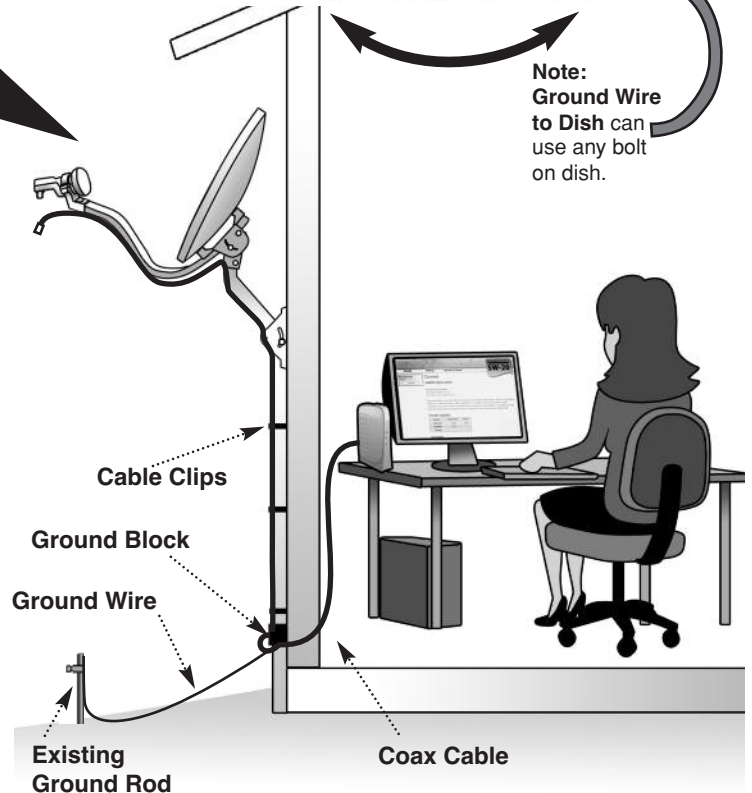
11 Run the Coax to the Ground Block.

You must ground both the Dish (A) and the Coax Cable (C) before it enters your home. The Install Kit (H) contains a Ground Block. This must be connected and properly grounded before you begin setting up your modem.



*Coax ground block and drip loop to make sure rain does not run in ground block

Note: Ground Wire to Dish can use any bolt on dish.



Note: Please check local electrical codes if unsure about grounding technique.

Grounding Options		
Option 1	Option 2	Option 3
Ground Strap Ground to an existing grounding conduit	Split Bolt Ground to existing ground wire	Existing Ground Rod Ground to existing ground rod

12 Installing Your Modem

You must remove any third party dial-up software that you have installed on your computer.

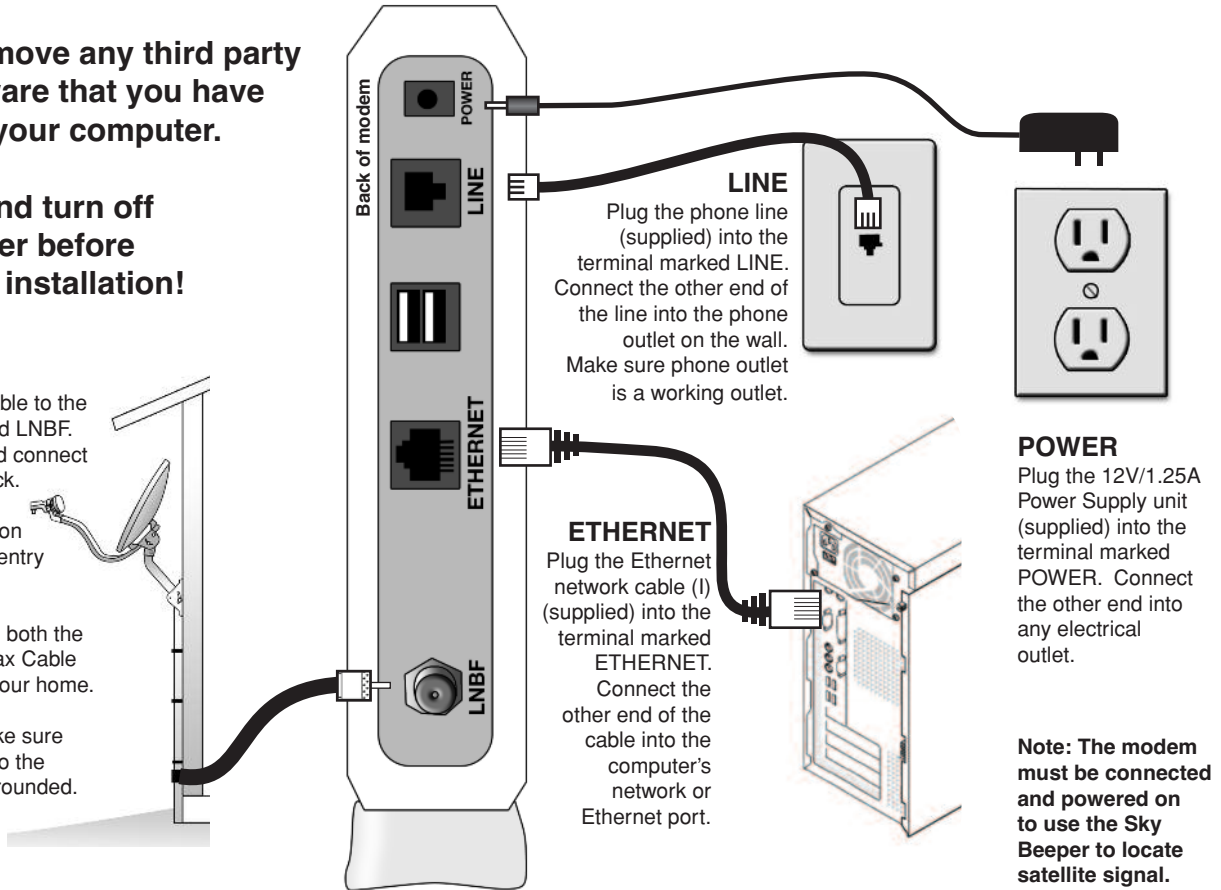
Shut down and turn off your computer before you start the installation!

LNBF

Connect the coax cable to the coax terminal marked LNBF. The other end should connect to the grounding block. The feed through bushing and the silicon can be used to seal entry of coax into home.

Make sure to ground both the Dish (A) and the Coax Cable (C) before it enters your home.

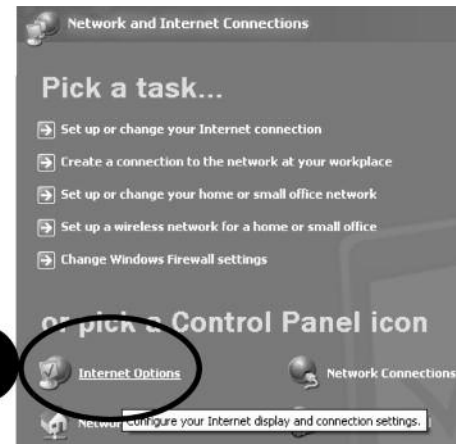
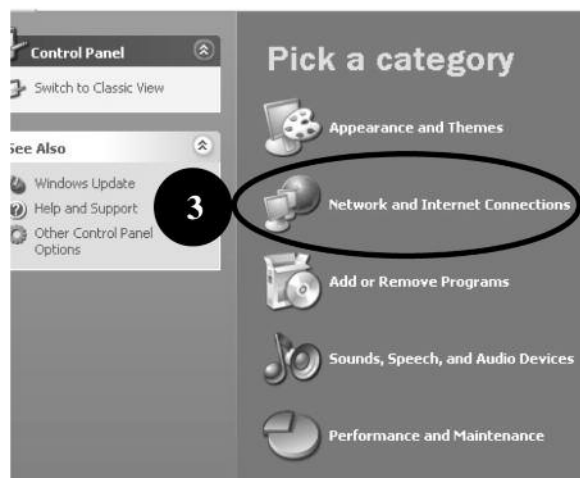
It is important to make sure that the connection to the grounding block is grounded.



13 Getting Started on the Desktop

Start the PC AND allow it to completely boot up.

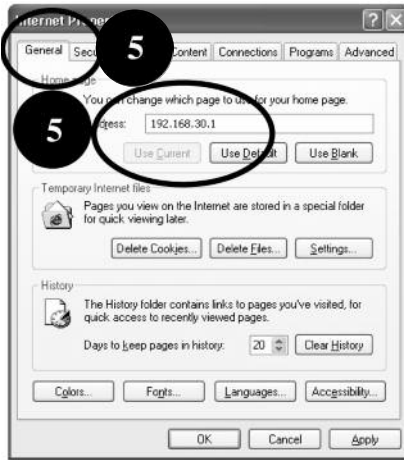
1. Click on Start from your desktop
2. Click control panel
3. Click on Network and Internet Connection (skip if viewing control panel in classic view)
4. Click on Internet Options



(continued on next page)

Getting Started on the Desktop *continued*

5. On the general tab set your homepage address to **192.168.30.1**

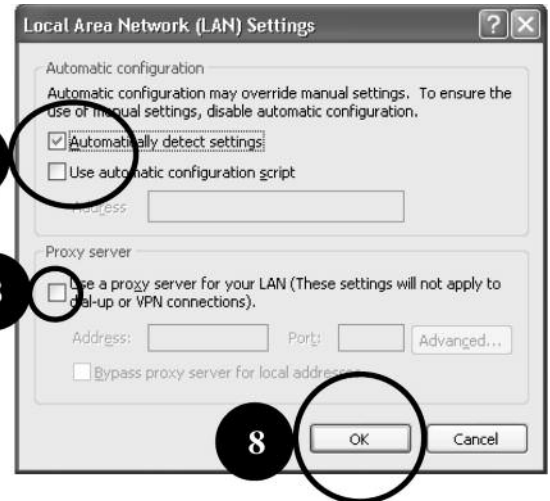


6. Click on connections tab and make sure the option never dial a connection is selected



7. Click LAN Settings and make sure Automatically Detect Settings is selected

8. Make sure the Proxy Server is not selected. Apply all changes and close the Control Panel

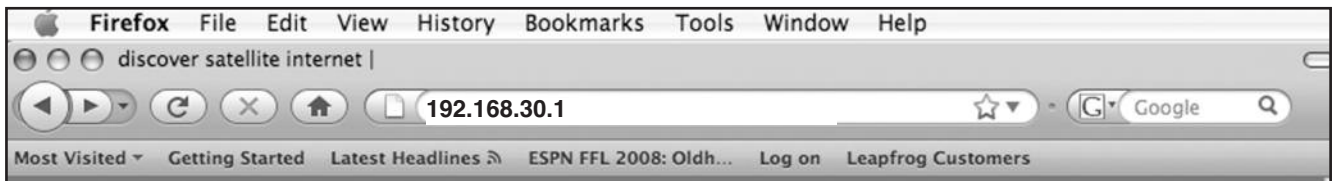


14 Configuring the Modem

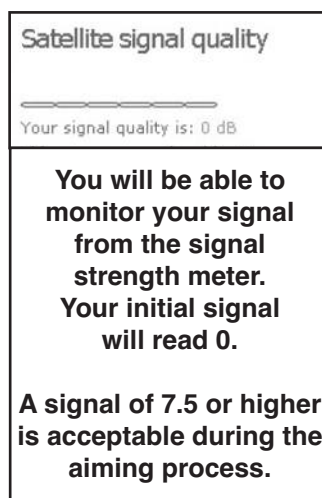
Open the Internet Browser, if it is not already open.

In the address bar of your web browser, type in the IP address: 192.168.30.1

Hit the return button on your keyboard to open the **Modem Connection Page**.



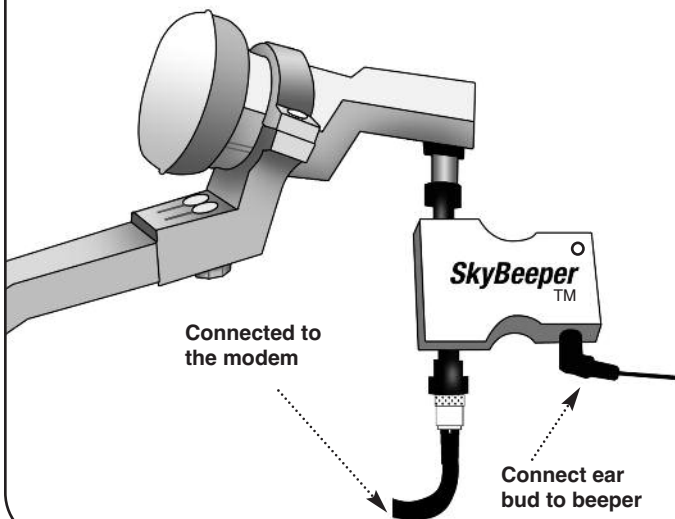
After the page has loaded you will see this screen.



Aiming the Dish

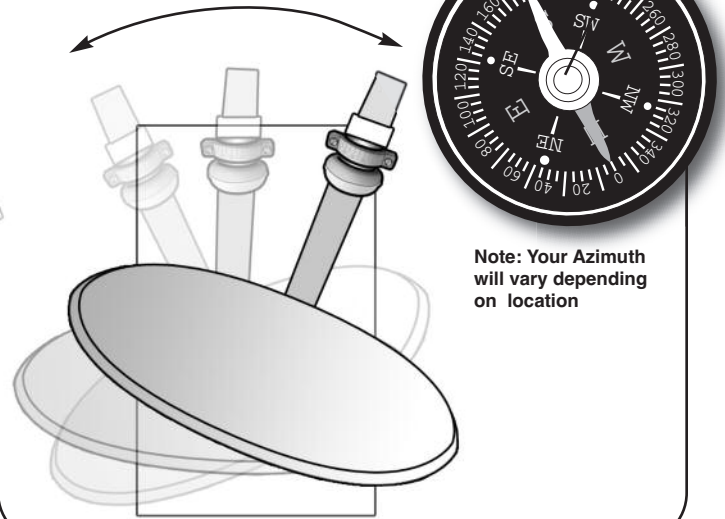
15

Attach the **Sky Beeper (M)** by connecting the LNBF side to the LNBF terminal and the REC side to the coax cable. Connect the ear bud to the beeper. The beeper will only be used to locate the satellite and to adjust the signal strength.



16

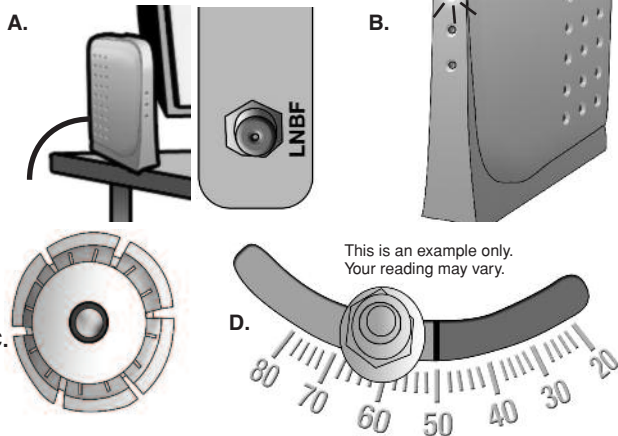
Using the compass or the reference point you obtained earlier in step 1, turn the dish so the LNBF points in the direction of the azimuth obtained in step 1.



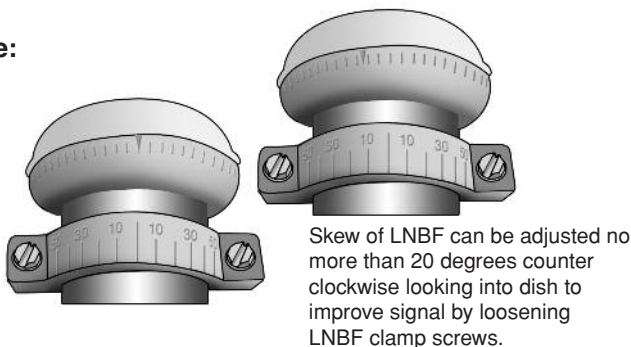
17

Before beginning the aiming process, check the following:

- A. The coax cable is connected to the modem
- B. The modem has power
- C. The dish is mounted plum
- D. The elevation is correctly set

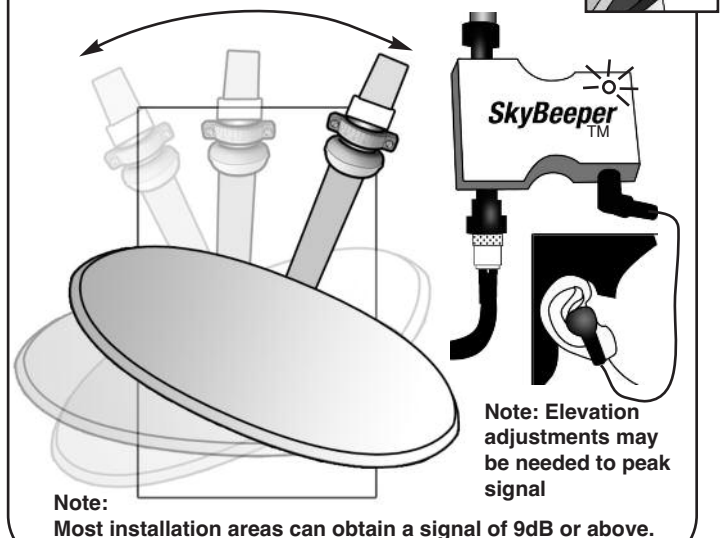


Note:



18

While searching for the satellite signal, the search path CAN be approximately 10 degrees East and West of the recorded azimuth. Listening to the beeper's ear bud turn the dish east to west in the direction of the azimuth, if you hear an alternating tone it means the system is searching for a signal. When you lock onto a satellite you should hear a solid high pitch tone. If you lock on the correct satellite you will hear a solid high pitch tone and the LED indicator light on the beeper will light up. While moving the dish if you hear the tone increase, you should slow down turning the dish. Once a solid tone is obtained allow 60 seconds for the LED to light. Once you have the LED lit use the modem's connection page and make fine adjustments until a signal of 7.5 or higher is obtained. After the signal is at an acceptable level, lock the dish securely. Once final adjustments have been made and dish is locked, remove beeper, slide rubber boot over coax, connect coax directly to LNBF then snap rubber boot over coax terminal on LNBF. Store beeper for later adjustments if needed.



Setting Up Your Modem

19

Modem's Dial-up Settings:

To set up the modem's dial up setting click settings then dial up settings from the modem home page.

Enter the required fields.

1. Enter your **user name**
2. Enter your **password**
3. Enter your **password** again for verification
4. **Use Phone book** should be checked if area code isn't required. If the area code needs to be dialed, obtain access number from phone book. Write it down. **Uncheck "Use Phone Book"** (4) and enter the number in the field. Do not use spaces, dashes or other characters between the numbers.
5. Select your **area code** from drop down list
6. Select **primary local access** number for local city
7. Select **secondary local access** number for local city
8. **Wait for dial tone** should be checked
9. Dial up only should not be checked
10. Click **save** when all settings are correct

Note: It is your responsibility to make sure the access number used is a local number and not a long distance number.

20

Modem's Satellite Settings:

To set up the modem's satellite setting click settings then satellite settings from the modem home page.

Enter the required fields.

1. Enter your **user name**
2. Enter your **password**
3. Enter your **password** again for verification
4. The **proxy server** is already set and should not be changed
5. Click **save** when all settings are correct

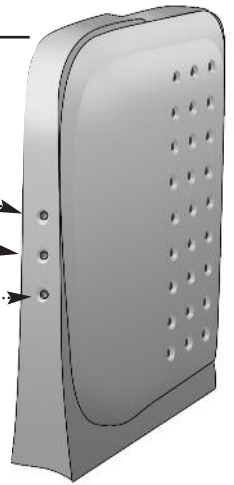
Note: Do not change satellite parameters.

Using Your Modem

21 Understanding the Lights on the Modem

1. The top LED light is the modem **POWER LIGHT**. It will flash when the modem is booting up. Once the modem has completed the boot process, the light will be a solid light.
2. The center LED light is the dialup **CONNECTION LIGHT**. It will be a solid light only when the modem is connected to the dial up service. If the light comes on and then back off, check username and password in the dial up settings.
3. The bottom LED is the **ETHERNET CONNECTION LIGHT**. The light will flash during boot up. The light will be a solid light when there is a connection via the Ethernet cable with the pc or networking device. If bottom light does not come on, check to make sure you are using the ethernet cable supplied and that it is snapped in properly. Also make sure **Local Area Connection** is enabled and set to DHCP.

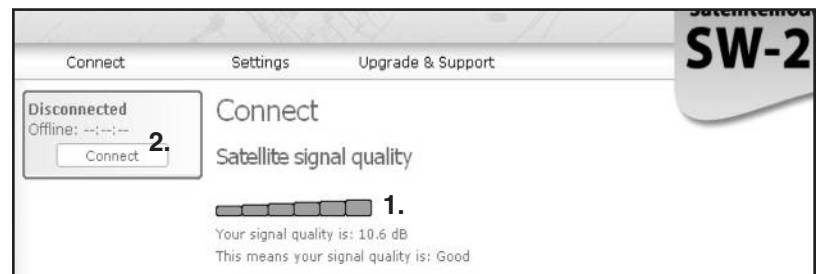
LED lights may flicker during data transfer.



The SW-20 Satellite Modem Web control interface contains all the setup and configuration required to configure your modem. To access these pages, open your Internet browser and enter the following URL in the Address field: 192.168.30.1

22 Connect/Disconnect

1. Verify signal is good
2. Click connect button in red connection box
3. Red box turns yellow, states connecting
4. After connected box turns green shows **Connected to ISP**
5. To disconnect return to page and click **Disconnect button in the green connection box**



Trouble Shooting

Dial up will not connect

- Make sure you have a working phone jack. (check modem's phone line with phone for dial tone)
- Remove splitters, surge protectors, faxes from line. Go direct from wall to modem.
- Verify the dial up user name and password is correct.
- If required to dial area code for local numbers refer to step 19 - #4
- Pick up phone while the modem is dialing and listen for any errors with connection.
- Change the local dial up access number being used.

Unable to surf

- Check that modem is connected to dial up. (middle light on modem is on)
- Check that the signal level is good, 7.5 or higher, on the modem home page.
- Verify the satellite user name and password is correct.
- Change the local dial up access number being used.

Unable to load modem page

- Make sure 192.168.30.1 is in the address bar of the browser.
- Add 192.168.30.1 to trusted IP on your anti-virus software and the firewall settings.
- Make sure LAN network is set to auto obtain IP and DNS automatically.
- Remove router or hub and connect modem directly to PC.
- Shut down modem and PC.
Reboot modem first then the PC
- Make sure any dial up accelerator has been disabled
- Make sure PC is set up as described in step 13

Notes:

Notes:

FCC Notice

25

FCC Advisories and Notices

Statement of Compliance: This equipment complies with Part 68 of the FCC rules and the requirements adopted by the ACTA. On the underside of this equipment is a label that contains, among other information, a product identifier in the format US:AAAEQ##TXXXX. If requested, this number must be provided to the telephone company.

USOC/FIC Codes: When ordering service from the telephone company for the equipment the following information should be supplied:

Universal Service Order Code (USOC): RJ11C

The Facility Interface Code (FIC): O2LS2

Plug and Jack: The plug and jack used to connect this equipment to premise wiring and telephone network must comply with the applicable FCC Part 68 rules and requirements adopted by ACTA. A compliant telephone cord and modular plug is provided with this product. The telephone cord is designed to be connected to a compatible modular jack that is also compliant. See installation instructions for details.

Ringer Equivalency Number (REN): The REN is used to determine the number of devices that may be connected to a telephone line. Excessive RENs on a telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to a line, as determined by the total RENs, contact the local telephone company. The REN for the equipment is part of the ACTA/FCC number that has the format US:AAAEQ##TXXXX. The digits represented by the ## are the REN without the decimal point (e.g., 01 is a REN of 0.1) and are followed by the Ringer Class (A or B).

Harm to the Network: If this equipment causes harm to the telephone network, the telephone company will notify you in advance that the temporary discontinuance of service may be required. But if advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a complaint with the FCC if you believe it is necessary.

Notification of Changes in Telephone Company Equipment: The telephone company may make changes in its facilities, equipment, operations or procedures that could affect the operation of the equipment. If the happens, the telephone company will provide advance notice in order for you to make necessary modifications to maintain uninterrupted service.

Repairs and Returns: If trouble is experienced with the equipment, of repairs or warranty information, contact your retailer. If the equipment is causing harm to the telephone network, the telephone company may request that you disconnect the equipment until the problem is resolved. Repairs should be made only by a qualified factory representative.

Party Lines: This equipment must not be used on party lines.

Alarm Equipment: You should ensure that this equipment does not disable alarm equipment in installations where the alarm equipment utilizes the same telephone network connection as this equipment. If you have questions about what will disable the alarm equipment, consult your telephone company or a qualified installer.

Electrical Safety Advisory: Telephone companies report that electrical surges, typically lightening transients, are very destructive to customer terminal equipment connected to AC power sources. This has been identified as a major nationwide problem. A commercially available, power surge arrestor is recommended for use with this equipment to minimize damage in the event of a electrical surge.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Caution: Changes or modifications not expressly approved by the party responsible for compliance could void the user s authority to operate this equipment.