



# MOUNT INSTALLATION GUIDE







## WARNING

**Make *all* electrical and coax connections from the controller to the mount and LNB's BEFORE applying power to, or connecting the satellite receiver to the controller.**

Note: When the controller is turned OFF it will still pass voltage from the receiver to the LNB if the receiver is plugged in to 110 AC. Shorting of the coax at any time during installation may cause damage to either the Controller or the DiSEqC Switch. Failure to follow this procedure can result in voiding of warranty replacement, not to mention time spent trying to troubleshoot a system that does not perform.

90% of all problems are a result of CONNECTIVITY or CONFIGURATION.

### Tools and Hardware Requirements

This is a list of tools and hardware that you might use in the installation of the system.

#### TOOLS

- #2 Philip screwdriver
- 3/32 Flat blade screwdriver for use on the 12 Pin green control cable connector
- 1/2" drill bit
- Appropriate size drill bit for pre-drilling of mounting holes in fiberglass roofs
- Cordless battery for raising the dish from its shipped position
- Cable cutters for shortening the control cable
- Wire strippers for preparing the control cable

#### HARDWARE and SUPPLIES

- Dicor or a lap sealant approved for the type of roof you are installing the mount on
- Dielectric grease or jell for moisture protection of all outdoor coax connections
- 16-20 ea. #12 Stainless Steel screws for securing the mount to the roof
- 6-8 ea. #8 Stainless Steel screws for securing the Clam Shell over cable entry hole
- 4" wire ties for securing and tidying up the cables inside the RV
- Cordless vacuum for interior cleanup

#### TOOLS REQUIRED BUT NOT SUPPLIED

- Common Sense

# TABLE OF CONTENTS

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<b>DEFINITIONS .....</b>	<b>5</b>
Mount Rotation Definitions .....	6
Function of Antenna Movement.....	7
<b>MOUNT COMPONENTS</b>	
Front.....	8
Rear.....	9
<b>INSTALLATION MOUNTING PADS .....</b>	<b>10</b>
<b>INSTALLATION OF vGPS .....</b>	<b>11</b>
<b>vGPS for DirecTV.....</b>	<b>12</b>
<b>vGPS for SHAW Direct .....</b>	<b>13</b>
<b>FEATURES AND OPERATION.....</b>	<b>14</b>
<b>MOUNT ROTATIONAL CLEARANCES... </b>	<b>15</b>
<b>BILL OF MATERIALS.....</b>	<b>16</b>
<b>MOUNTING HINTS.....</b>	<b>17</b>
<b>WIRING DIAGRAMS.....</b>	<b>18</b>
<b>ROOF CONNECTOR HOUSINGS .....</b>	<b>21</b>
<b>FIELD SERVICE RELATED PARTS.....</b>	<b>22</b>
<b>SUPPORT .....</b>	<b>23</b>
Parts return procedure	
Support contact information	

# DEFINITIONS

The mount consists of several components that make it up.



## **DISH, REFLECTOR, PARABOLA**

Receives signal from the satellite and reflects it into the LNB.

## **LNBF**

Receives the focused signal from the dish and blocks the noise from the signal and sends it to the satellite receiver by way of the coax, hence, it is called a **Low Noise Blocker (Feed)**.

## **vGPS**

Virtual Ground Positioning System is used to calculate Elevation and Skew when required by the system.

## **LNB ARM**

Holds the LNB in the proper focal point of the Dish.

## **DISH SUPPORT ARMS**

Attaches the dish and skew assembly to the Base Unit.

## **SUPPORT ARM ATTACHMENT BOLTS**

Securing bolts that secure the Dish Support Arms to the Base Unit.

## **BASE UNIT**

Performs the rotating functions in both Azimuth and Elevation. It is attached to the roof of the RV by screws or bolts.

# MOUNT ROTATIONS

The mount will use the rotation of three (3) axis to achieve acquisition. Terminology is helpful when conversing with your installing dealer or a factory support technicians. Earlier in this manual you were given instruction concerning the components of the mount. We will now discuss the rotation of the mount and what is accomplished with each movement.

Rotation of the base in a clock wise/counter clockwise is call **AZIMUTH**



Tilting of the antenna from side to side is called **SKEW**



Antenna in the upright position and not moving is called **DEPLOYED**



The antenna in the travel position is called **STOWED**

To **FRONT** of vehicle



Movement of the antenna from the **STOWED** position to the **DEPLOYED** position is called **ELEVATION**



# FUNCTION OF ANTENNA MOVEMENT

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## AZIMUTH

Once the antenna is deployed, the Controller (Indoor Unit) will instruct the mount to rotate clockwise and then counter clockwise to sweep the sky for satellites. If the system does not see a satellite that it can identify once it rotates to its clockwise or counter clockwise, as it stops against an azimuth limit it will go up 2 degrees and reverse directions. If it does not see a satellite that it can identify on this pass when it hits the opposing limit it will go down 4 degrees in elevation. If nothing seen, it will go up 6 degrees, ever widening its search pattern until it has swept a "box" in the sky. If nothing is found in this search pattern the system will display an error as to what it thinks is wrong.

## SKEW

Once the controller has identified two satellites or has input from a vGPS, it will calculate the arc in which the satellites reside and tilt the antenna (and LNB's) to align each LNB at the end of the LNB Arm with their appropriate satellites. If you travel from Southern Florida to Southern California the skew angle will change dramatically. It will tilt or skew the antenna an opposite or more extreme direction. It will change somewhere in the middle of the country depending upon the satellites that you are looking for.

## DEPLOYED

If the mount has quit moving it has probability acquired, identified and maintained a high signal lock and you are probably watching TV.

## STOWED

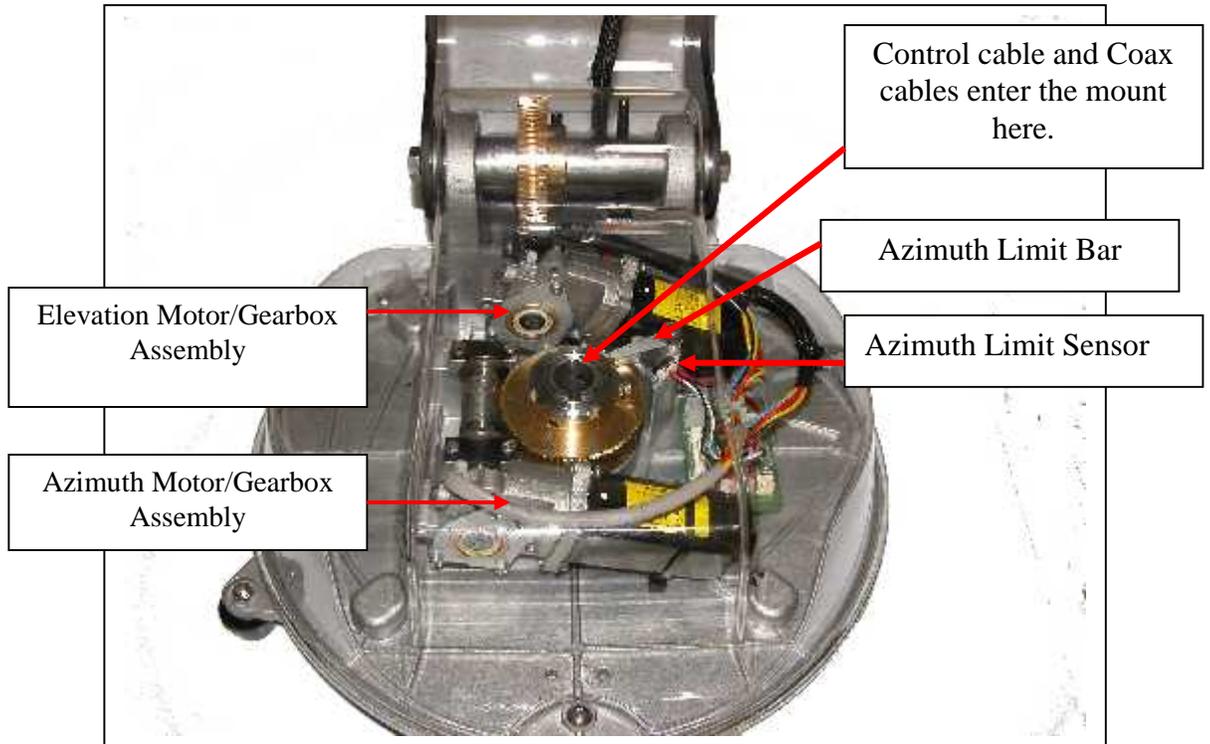
When the mount is given a command to stow, it will elevate fully to clear any object on your roof, bring skew into a neutral position and then rotate in azimuth until it hits an azimuth limit. At that time it will move down in elevation until it comes to rest in a travel position. **This is an important step.** This will prevent the automatic stow feature that an overpass provides. (just checking to see if you were reading the manual).

## ELEVATION

The controller remembers its last elevation that it saw when it last identified a satellite. It will rise to that specific elevation to shorten your search time. If the system has a vGPS then that device will provide the controller with the proper required information for proper satellite acquisition.

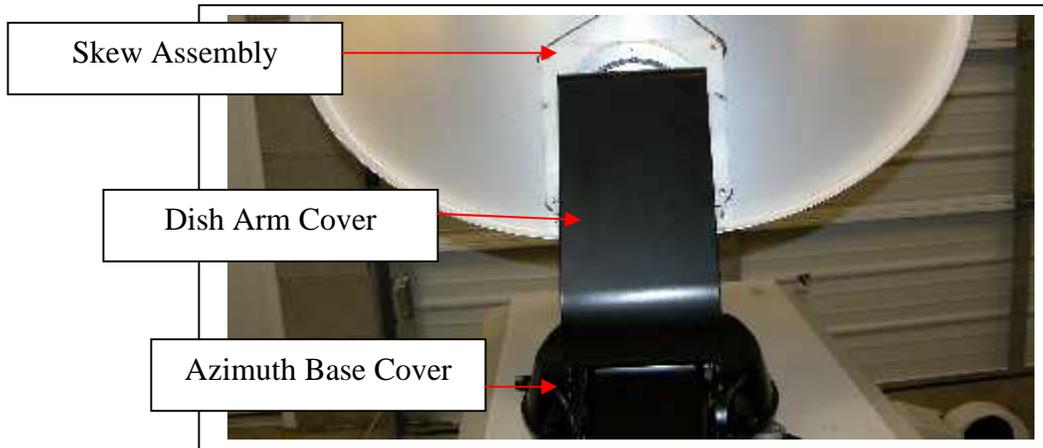
# MOUNT COMPONENT (Front View)

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# MOUNT COMPONENT (Rear)

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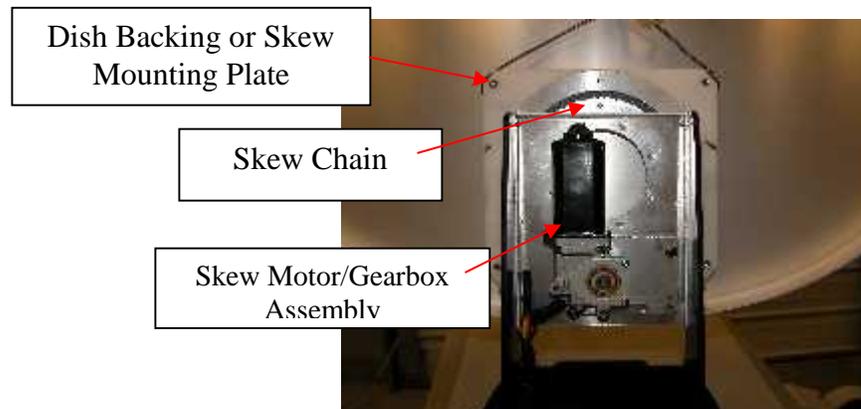


## **SKEW ASSEMBLY**

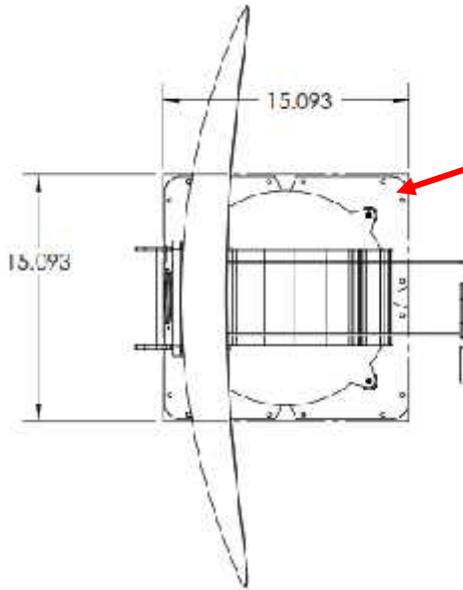
This assembly tilts the dish from side to side (skew) to align for polarity and satellite positioning or both.

## **DISH ARM COVER**

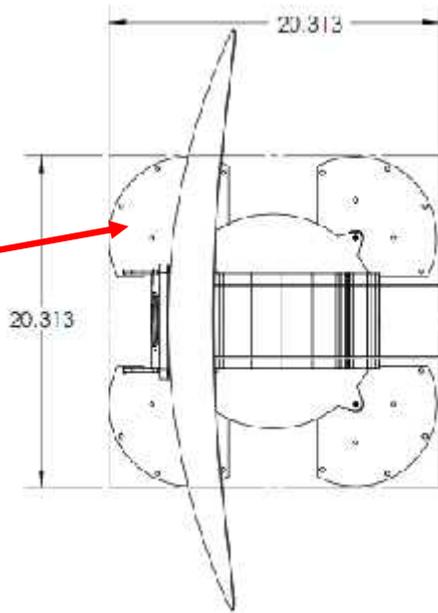
Covers and protects the Skew Motor mechanism from the elements. Provides protection from tree limbs etc. that it may encounter in the stowed position when the RV is moving.



# INSTALLATION MOUNTING PADS



The Mount will be shipped with the Mounting Pads rotated into the "shipping" position. They will be rotated and secured prior to installation. For roofs that have a *stable platform* they may be installed in this position.



The Mount will be shipped with the Mounting Pads rotated into the "shipping" position. They will be rotated and secured prior to installation. For roofs that have an *unstable platform* they may be installed in the "open" position.



# INSTALLATION OF vGPS

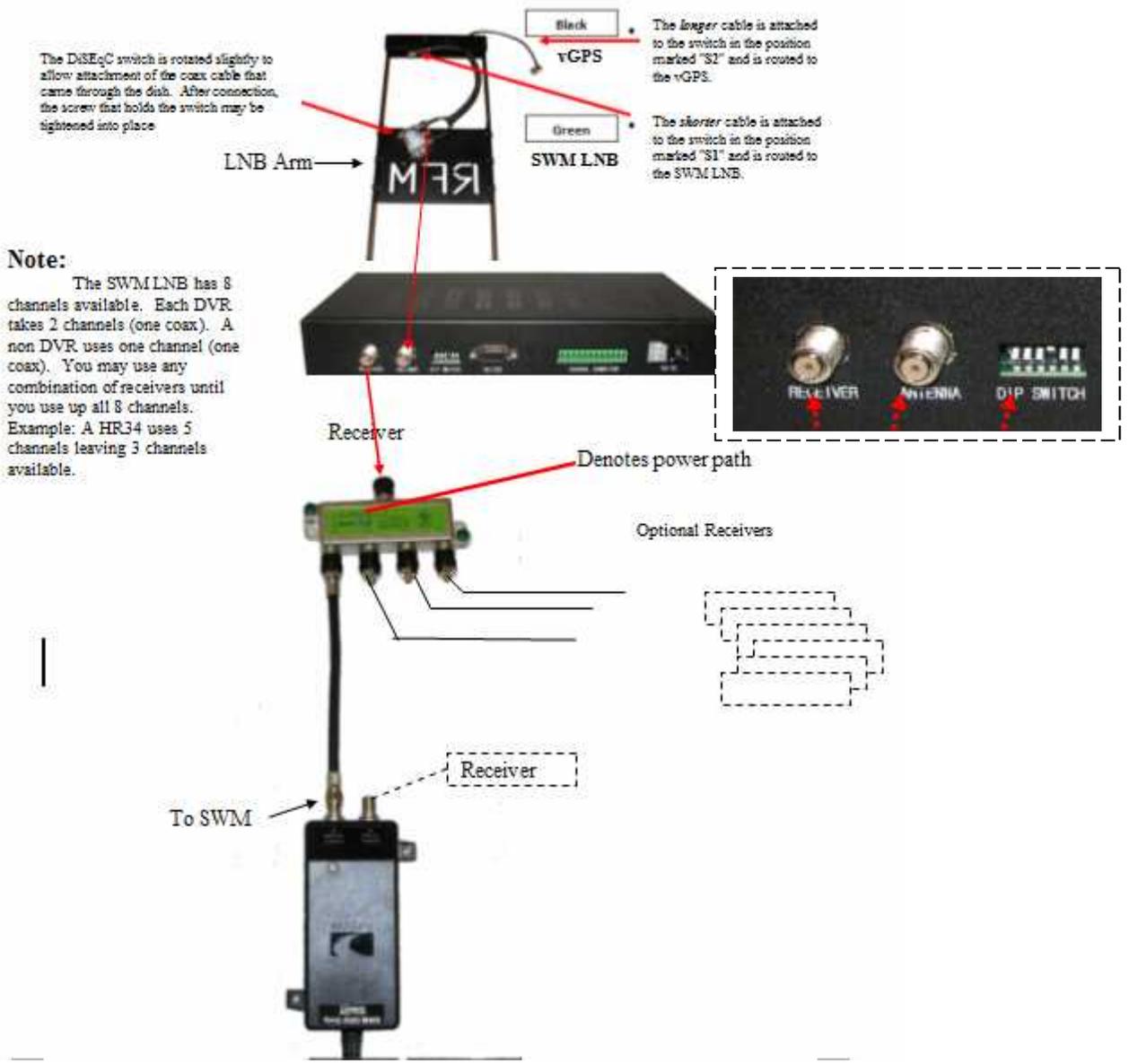
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The vGPS is a device that is affixed next to the DirecTV SWM or SHAW Direct LNB. It is used in the acquisition sequence of controller. It is critical that the vGPS be installed and wired according to the following information. Failure to do so will make the system inoperable. vGPS mounts, when facing the dish, on the left side of the LNB as pictured.

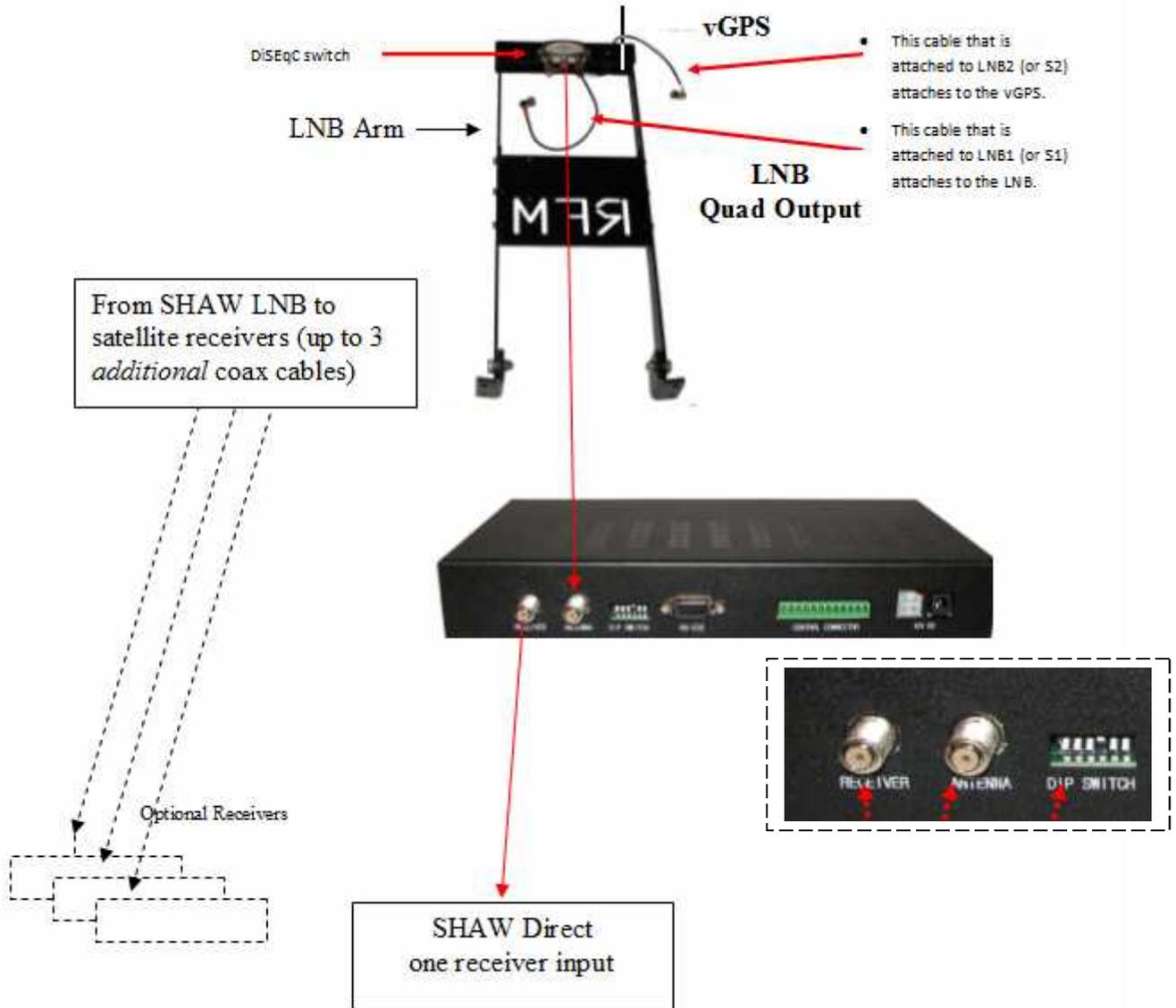


# SWM

## vGPS BLOCK DIAGRAM



# SHAW Direct



# F EATURES AND OPERATION

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The mount is designed to respond from electronic signals from the controller (In Door Unit) to raise it from its stowed position and align itself automatically on the selected satellite(s).

**To operated the system follow these steps:**

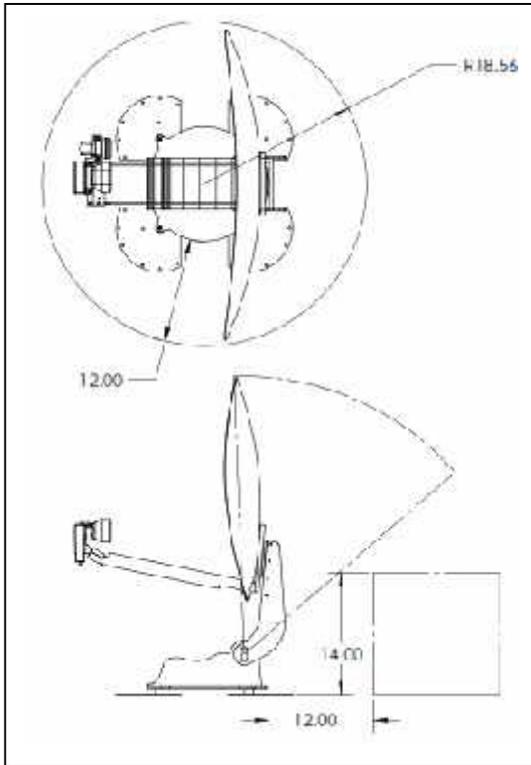
1. Initially you will want to make sure the Dip Switches are set properly based on your configuration requirements.
2. Turn ON Power to the controller
3. If you want to raise the dish or search for satellite(s), press SEARCH
4. If you want to stow the dish, press STOW
5. The RFM-1000/1100 Controller will shut OFF power after completing SEARCH or STOW procedure.

**If you want to watch satellite TV, after following the above procedures:**

1. Turn ON your TV
2. Turn ON your satellite receiver
3. Watch satellite TV

**This mount is "Field Serviceable". Most all components that make up this mount may be replaced or repaired in the field by the consumer or a RF Mogul dealer. There is practically no part of this mount that cannot be repaired or replaced in the field.**

# ROTATIONAL CLEARANCES



If you don't understand these measurements, please contact our Technical Support Department.

MOUNT FOOTPRINT (Stowed)		
<u>Dish Size</u>	<u>Width</u>	<u>Length</u>
75 cm	36"	37.0"
<b>Height 10.5"</b>		

# LOOK ANGLE LIMITS

Look angle for Northern limits are

**EAST**

Lat 49°

Long 65°

This is approximately a 18° look angle for the reflector.

**WEST**

Lat 61°

Long 136°

This is approximately a 15° look angle for the reflector

Look angles for Southern limits are

**WEST**

Lat 24°

Long 107°

This is approximately a 65° look angle for the reflector

This does not say that you will be able to see the signal at these angles, only that the dish is capable of moving to these extremes at these coordinates. Consult your programmer for viewing capabilities.

# BILL OF MATERIALS

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Your system, when ordered as a system, comes with the following items:

- 1 ea. Mount consisting of the base, reflector, LNB Arm and LNB (the Mount)
- 1 ea. LNB Landing Plate
- 15 ft. 20 gauge, 12 conductor control cable (terminated with water tight connector on the mount end)
- 1 ea. 12 pin connector for securing the control cable to the controller
- 1 ea. Controller (Indoor Unit)
- 1 ea. 12v 7 amp Power Supply for the controller
- 1 ea. User Guide
- 1 ea. Product Registration Card
- 1 ea. Wiring and Configuration charts

If the system is **DirectTV SWM** or **SHAW Direct** you will receive..

- 1 ea vGPS
- 1 ea vGPS Mounting Bracket

Things that the installing dealer will supply:

- Lap Sealant designed for the specific roof of the install
- Stainless Steel screws for securing the mount, LNB Landing plate and Connector Housing to the roof
- RG6U coax
- Coax connectors
- Loom for encasing cable on the roof (optional)
- Cable clamps or straps used to secure the cables to the roof (optional)

What is required but not supplied

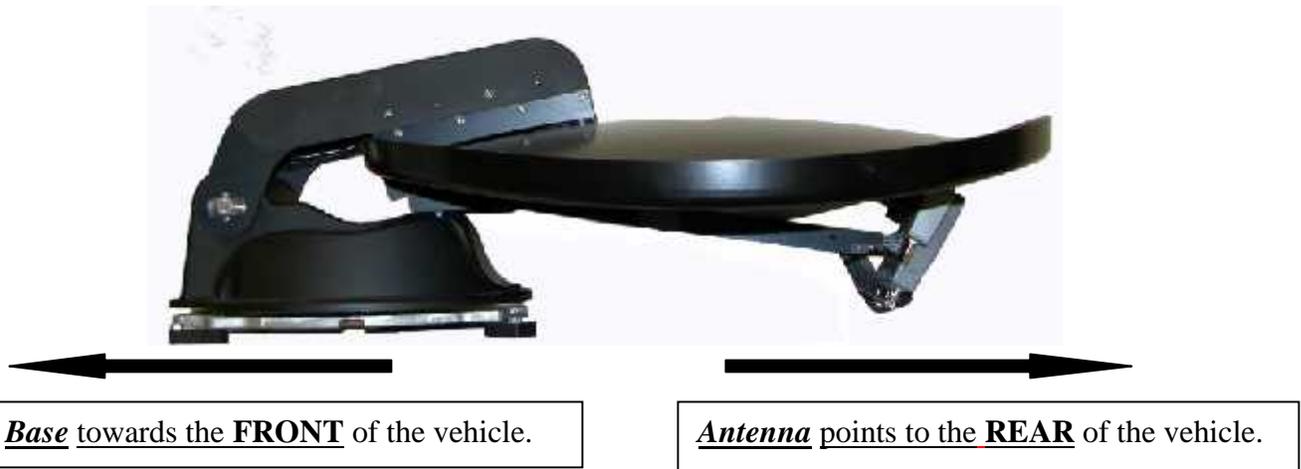
- Common sense

# MOUNTING HINTS

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The steps outlined here will help you determine what is important to you when installing your RF Mogul satellite television system. They are not expected to give you *every* detail of the installation procedure but will provide an overview.

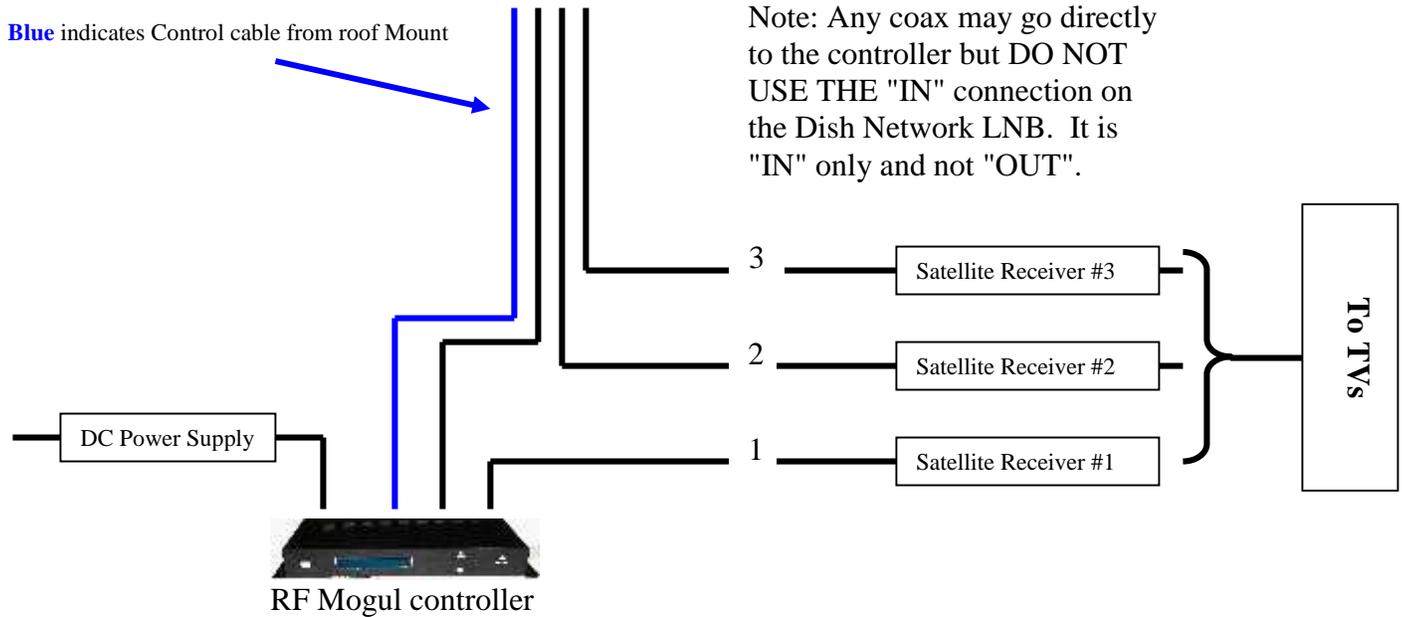
## Position the mount in this manner for Direction of travel



- **It is recommended** that you place the mount in the centerline of the RV. It is not required but recommended. The mount is designed to handle slightly curved roofs because of the nature of the Mounting Feet and acquisition routines.
- **Seal the Screw Holes** of the mounting feet to prevent moisture from penetrating the holes made by the attachment screws. Use all of the screw holes in the mounting feet that are necessary to complete a proper installation. It is not necessary to seal the mounting feet, just where the screws attach them to the roof.
- **Use proper** sealant whenever penetrating the roof during installation. A trick would be to screw through the sealant rather than just surrounding the penetration.
- **Leave at least** a 6" Service Loop when determining length of cable to use. It may be necessary to cut the cable to replace connectors in the future and you will want some slack when doing so.
- **Always use** a Dielectric gel or grease on all out door electrical connections to prevent moisture intrusion and moisture damage.
- **Find a location** for the mount that will accommodate the shortest cable runs as possible.
- **Allow for** proper clearance to prevent the mount from hitting things like the air conditioner, radio antenna, off air television antenna, solar panels etc.

# WIRING DIAGRAM

## For Dish Network, BELL TV

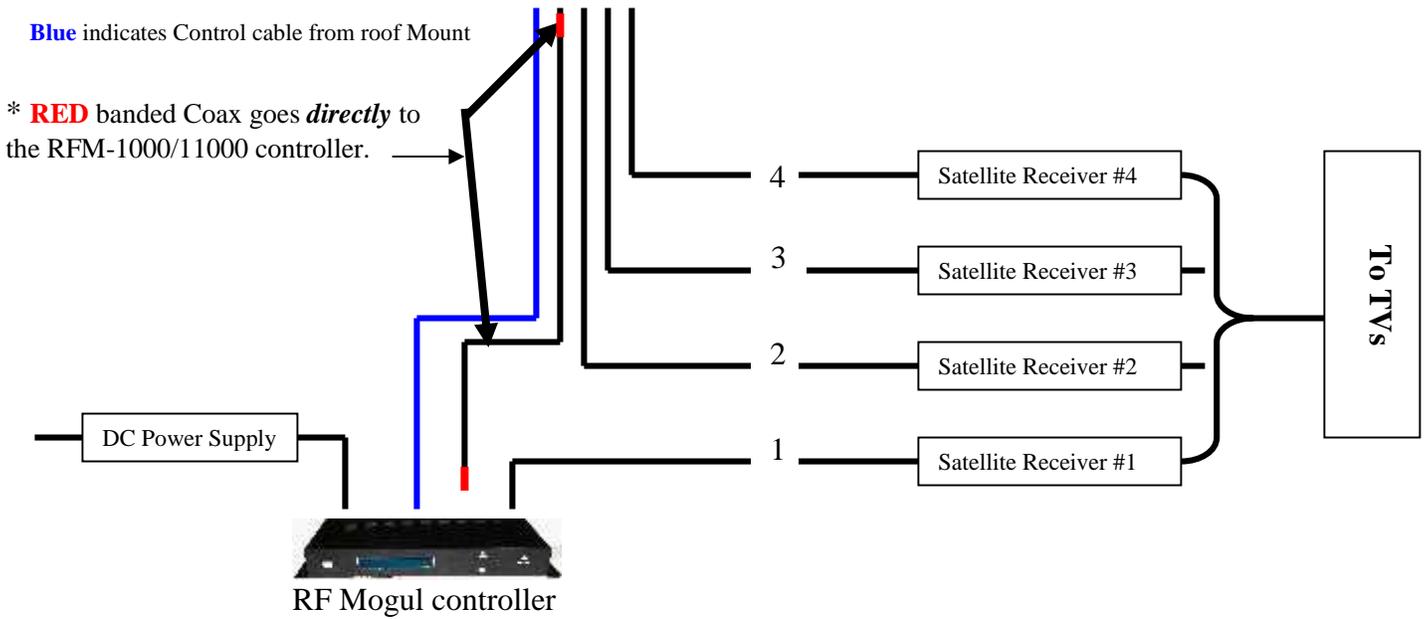


### \*MOUNT COAX CONFIGURATION

- **Dish Network/Bell TV** 3 coax cables (any Green banded cable at base of mount can go *directly* to "Antenna" on the RFM-1000/1100 controller.)

# WIRING DIAGRAM

## For SHAW Direct Configuration



### \*MOUNT COAX CONFIGURATION

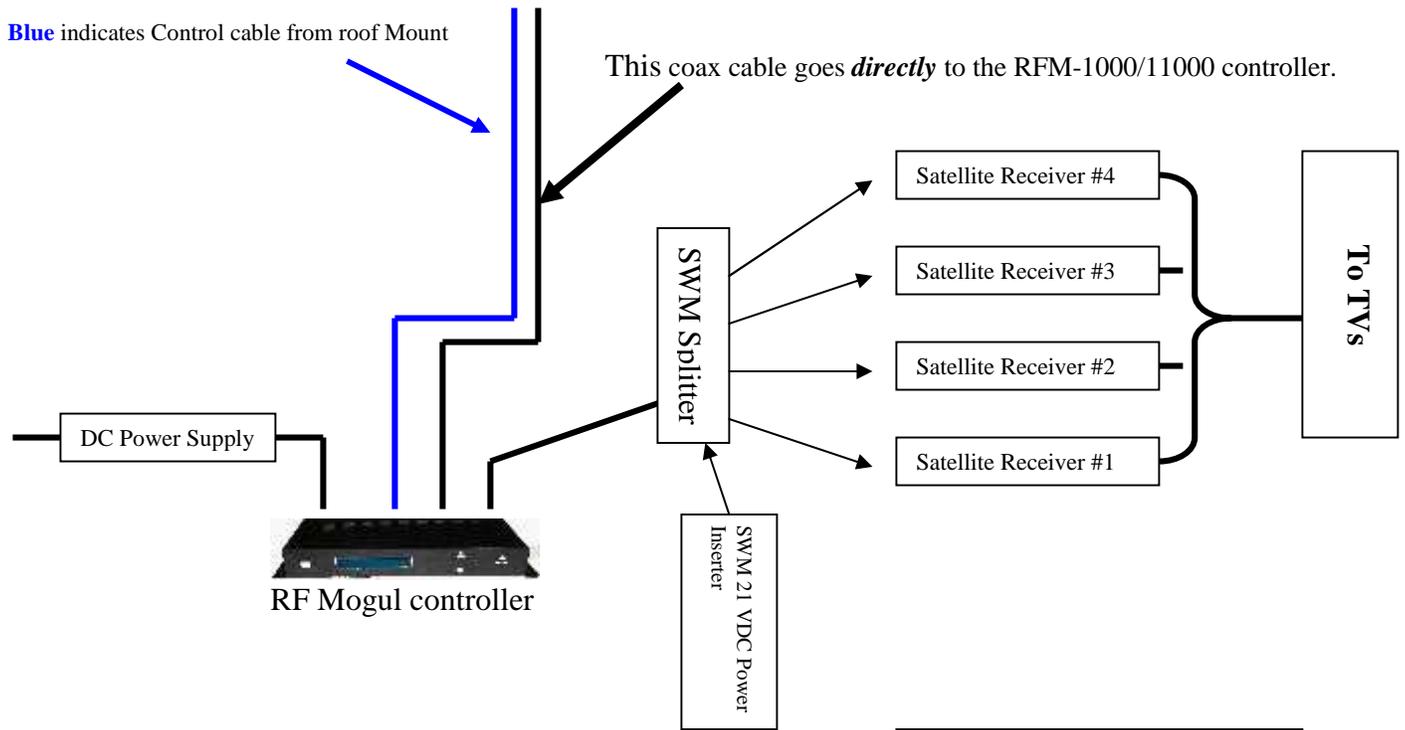
SHAW Direct - 4 coax cables (the Red banded cable at base of the mount goes *directly* to the RFM-1000/1100 controller.)

# WIRING DIAGRAM

## For DirecTV SWM Configuration



**DirecTV SWM** requires just a single coax cable for its SWM service. Multiple coax cables are not required. See "vGPS Block Diagram" in this manual for more details.



Note: The SWM LNB can service up to 8 channels in any combination of usage.

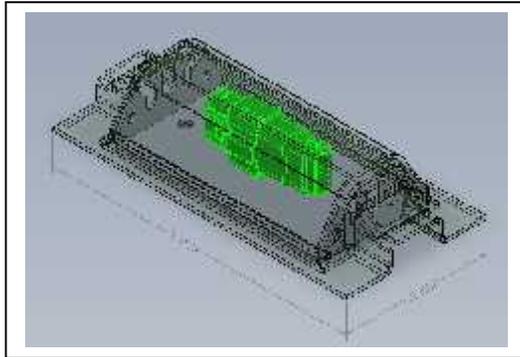
# HOUSINGS

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## HOUSINGS

For protection of cable connections and roof entry hole

### Control/RG6U Cable Connector Housing positioned next to the mount



This covering will house

- 1 Control Cable, and
- Up to 4 RG6U Coax Cables

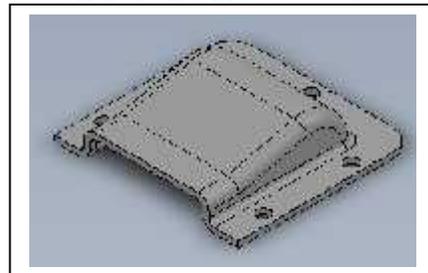
Shown with Control Cable Connector and no cables.

Housing will be manufactured of black plastic material.

**NOTE:**

**The Connector Housing *will not*** be sealed with Dicor, only the screws that attached the inner plate to the roof will require sealing (not the cover).

### Cable Clam Shell covers the entry hole of the Control and RG6U cables



This covering will house

- 1 Control Cable and,
- Up to 4 RG6U Coax Cables

Housing will be manufactured of black plastic material.

**Note:**

**The Clam Shell** will require sealing with Dicor. Specifically the cables as they enter the shell, and the shell itself.

# FIELD SERVICE RELATED PARTS

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Your mount consists of several "field serviceable" components. Depending upon your warranty status the parts may require purchasing. The pricing given in this manual is give to provide you an estimate of the cost of the part. It is not intended to be the actual price.

<b>Description</b>	<b>Part Number</b>	<b>Associated Cost</b>
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**Motor**

- Azimuth
- Elevation
- Skew

**Sensor, Opto**

**Covers**

- Azimuth
- Elevation Arm (skew)

**Cable**

- Control 15'
- Control 30'
- Control 40'
- Optional Mount Coax Cable 76"  
(From the connector cover to the LNB)

**LNB**

- DirecTV SWM 3 LNB
- Dish Network 1000.2 3 LNB
- BELL TV 1000.2 3 LNB
- SHAW Direct E75 XKU Triple Satellite LNB

**Controller**

- RFM 1000/1100

**Power Supply**

- 12 VDC, 7 amp.

**Reflector 75cm**

**LNB Arm Assembly**

- SHAW Direct
- Dish Network HD/ BELL TV
- DirecTV

# SUPPORT

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This system was designed to provide years of trouble free service. Should a question arise concerning operation please call your installing dealer first and then if required call RF Mogul at 801-895-3392 and ask for Technical Support. You will be provided with answers to your questions.

## RETURNING PARTS TO THE FACTORY

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Parts returned to the factory must contain a Return Material Authorization (RMA) which will be provided by the RF Mogul Technical Support Department at the time of troubleshooting. This will ensure proper accountability of returned equipment or parts. Make sure that the following information is contained on your shipment.

**RF Mogul**

Attn: Product Evaluation Department

RMA # \_\_\_\_\_

3604 South Via Terra

South Salt Lake City, UT 84115

You must include your Return Address and Telephone Number failure to do so may result in you being billed for a non-returned part.

**Thank you for purchasing a RF Mogul System.  
We appreciate your business. If you need to contact us please see  
the information below.**

**RF Mogul**

**3604 Via Terra**

**South Salt Lake City, UT 84115**

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