



SATELLITE TV

EAGLE II

OPERATION / TECHNICAL MANUAL

Eagle II Controller



I*ndex*

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WARNING

Double check *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: The control cable has 12 wires that control motors, provides GPS information and sensor feedback. If a control cable connector is miss wired it can cause damage to GPS or sensors. This can result in component failure and cause many hours of unnecessary troubleshooting time which costs everyone time and money. A double check of all wiring before powering up will result in a smoother installation.

REMEMBER

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

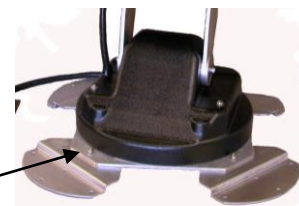
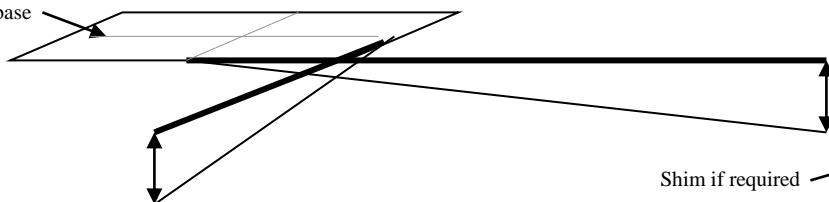
Mount Installation Warning

Your Eagle mount utilizes a GPS system for acquisition. Calculations for skew and elevation are based on a level surface (+or- 3 Degrees, Right, Left, Forward and Back). Failure to level the mount to these specifications during installation can equate to poor performance. To determine if your mount is in compliance to these criteria, you can use the following formula. Tools required...

1. A level
2. A tape measure

Formula = + or - 3 degrees is approximately 5/8" for every 12" from center of mount.

Represents
mount base



Shim if required

How to measure.... using a level, lay it onto the base of the mount. Bring the bubble of the level to center and at 12" from the center of the mount measure the distance from the bottom of the level to the roof top. If the distance 12" out from center of the mount is less than 5/8" or less than 1 1/4" at 24" out, then you are within tolerance.

How to adjust the mount.... if leveling of the mount is required, use flat washers to "shim" the low side of the mount to bring it into tolerance. It does not have to be exact, just shim to bring the mount into specs. It may be necessary to lengthen the screws to accommodate a larger adjustment.

M_{ount} definitions

MOUNT (ODU)

A system consists of several components



Items included with the system and are not shown.

- 1 ea LNB Landing Plate
- 25' Control Cable
- 1 ea Clam Shell
- 1 ea Connector, green, 12 pins
- 1 ea Power Supply, 12 VDC 7 amp
- 1 ea User Guide
- 1 ea EAGLE Controller

C *ontroller Views*

FRONT VIEW Definitions and Usage

CONTROLLER (IDU)



SEARCH

Directs the system to "FIND" Satellites.
Also navigates through the menus.

STOW

Directs the system to "STOW" the mount and prepare it for travel
Also navigates through the menus.

LCD Display

Displays the actions of the system.

USB Programming Port

Used for upgrading firmware.

POWER

Will turn controller ON and OFF.

2nd push enters the Menu options. "Search" and "Stow" navigates through the menus. During that time, the Power button serves as the "select" button. HOLDING THE POWER BUTTON DOWN FOR 5 SECONDS WILL ALSO TURN OFF THE *EAGLE* CONTROLLER.

LED

LNB indicates the receiver coax is attached to the controller.

PS indicates power is being supplied to the controller by the provided Power Supply.

REAR VIEW Definitions and Usage

CONTROLLER (IDU)



CONNECTIONS

12 VDC: (Power)

12 VDC 7 amp (power supply provided).

CONTROL CABLE CONNECTION:

Termination of the 12 wires of the control cable to the controller takes place here.

TO REC: (To Satellite Receiver)

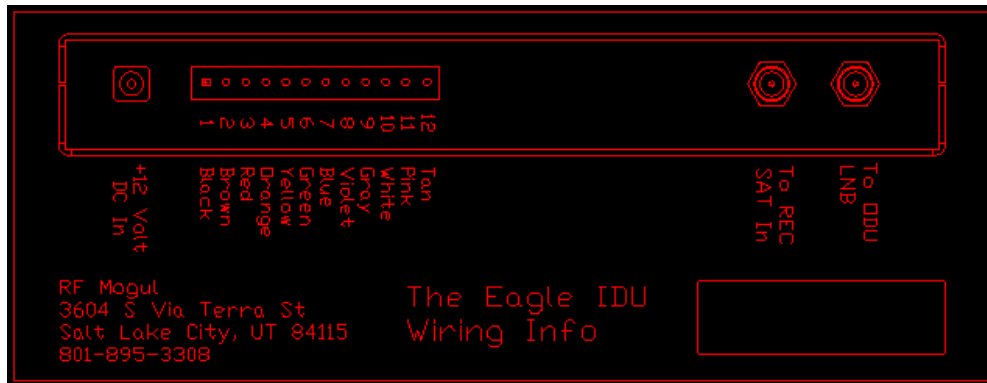
This is a coax pass-through connection to your satellite receiver (Satellite IN). There is an exception for DirecTV SWM. (See Wiring Diagram in this manual for splitter insertion).

TO LNB: (To LNB on the roof mount)

This is a coax connection to the roof mount antenna LNB through the base of the mount to any one of 4 coax cables that run through the mount and is (are) secured to the LNB

If you have DirecTV SWM the coax must run *directly to the controller uninterrupted* to the connection marked "TO LNB" on the Eagle Controller. (It may be necessary to buzz out the coax cables going through the mount be to determine which one is to be connected to the SWM LNB since only one cable is required but multiples are supplied).

Label on the bottom of the controller



Configurations and Software Version

Each of the Program Providers will require different software

- EAGLE* -1 SHAW Direct = 107.3, 107.3, 111.1 Satellites (For Canadian Use Only)
- EAGLE* -2 DirecTV SWM = 99, 101, 103 Satellites
- EAGLE* -3 Dish Network = 110, 119, 129 Satellites
- EAGLE* -4 Bell TV = 81, 92 Satellites (For Canadian Use Only)

TO CONFIGURE

Configuration of your system is done through software. There is a specific version of software for each Program Provider.

- Go to www.rfmogul.com to download (to your USB Flash Drive) the appropriate software for your program provider.
- Place the USB flash drive into the USB Program Port on the front of the controller and turn the power ON.
- The controller will display downloading status and transfer the Program Provider file into memory. This process will take approximately 8-10 seconds.

SOFTWARE VERSION UPGRADES

Why should you think about downloading new software or changing configurations?

1. To take advantage of new innovative features offered by the latest revision of software.
2. If you have called your installer and he/she has recommended it.
3. If you read the History of the new software and you determine that you could benefit from its features.

Menu Options

Menus and Operation

Your controller is menu driven. By selecting a particular menu, you can perform many functions besides just "SEARCHING for satellite".



TO SEARCH

- Press the Power button
 - Displayed will be the....
 - **System configuration (software configuration)**
 - **EAGLE 1** SHAW (Triple Satellite xKu LNB)
 - **EAGLE 2** DIRECTV (SWM 3 LNB)
 - **EAGLE 3** DISH NETWORK (Triple Satellite 1000.2 LNB or Hybrid Triple LNBF Hopper 3)
 - **EAGLE 4** BELL TV (Triple Satellite 1000.2 LNB)
 - **Version of software** i.e. yy/mm/dd
 - **Options** are accessed by pressing "SELECT" or POWER button the second time to enter the menu options. To navigate through the options press either the SEARCH (UP arrow) or STOW (DOWN arrow)
 -

TO ENTER MENU OPTIONS

- Press the Power button again after turning ON the power to enter the "menu" portion of your system.....
 - Press the Up and Down arrows to help you navigate through the menu. Once the portion of the menu that you want is displayed, press SELECT (POWER button) to "select" that option....
 - **1: shutdown** - will turn OFF your controller
 - **2: search** - will direct the mount to search for your specific satellite that is specified in your system configuration
 - **3: stow** - will cause the mount to return to its travel position
 - **4. Set Position (Technical Support ONLY Menu)**
 - **5: Set Trigger (Technical Support ONLY Menu)**

- **6: move azimuth** - pressing and holding the appropriate button will manually move your mount in azimuth (Up arrow CLOCKWISE, Down arrow COUNTERCLOCKWISE)
- **7: move elevation** - pressing and holding the appropriate button will manually move your mount in elevation (Up arrow UP, Down arrow DOWN)
- **8: move skew** - pressing and holding the appropriate button will manually move your dish in skew (Up arrow right side DOWN, Down arrow left side DOWN)
- **9: test dish** - will move the dish in all axis for one complete cycle
- **10: temperature** - will display current operating temperature of its operating environment.
- **11: test azimuth** - will automatically do a test of the azimuth sensor
- **12: test elevation** - will automatically do a test of the elevation sensor
- **13: test skew** - will automatically do a test of the skew sensor
- **14: enter GPS coords** (enter GPS coordinates see below*).
- **15: test sattbl (test satellite table) (Technical Support Menu)**
- **16: exit** - Selecting this option will take you back to main menu

NOTE: There is an "**OVER TEMPERATURE**" condition that will be displayed at the beginning of the SEARCH function if the operating environment is more than 136°F. It will not prevent the SEARCH routine but will warn of potential damaging heat conditions for the equipment within that operating environment.

AFTER LOCKING ONTO THE PROPER SATELLITE:

The controller will remain ON for a few minutes and then automatically turn OFF.

AFTER STOWING:

The controller will automatically turn OFF.

If change of software is required

Procedure for updating software

The software can be maintained by use of a USB Flash Drive.

- Call RF Mogul for the software for your application. Make sure that it is placed in the "root directory" and that no other ". hex" file is in that directory.
- Insert your flash drive into your EAGLE controller.
- Turn power ON
- Wait for the progress bar that will indicate that the software is being successfully loaded (usually 8 seconds).
- Remove the flash drive and press SEARCH to implement acquisition.

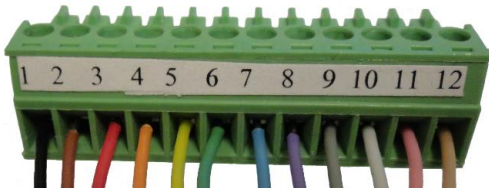
***Entering GPS Information**

This is a temporary fix until GPS issue is resolved

- Obtain GPS coordinates (Latitude/Longitude) Example... You can use Google Search "lat/lon of Reno, NV" if you are in the city of Reno, NV. This will provide you with information needed. Only the whole number is required.
- Select menu #14 and enter those coordinates.
- Exit the Menu and press "Search" to find satellite.
- Call RF Mogul support to have the GPS error resolved

C onnecter Wiring Diagram

Wiring the 12 Pin Controller Connector



MOVING THE ANTENNA USING A 12 VDC SOURCE

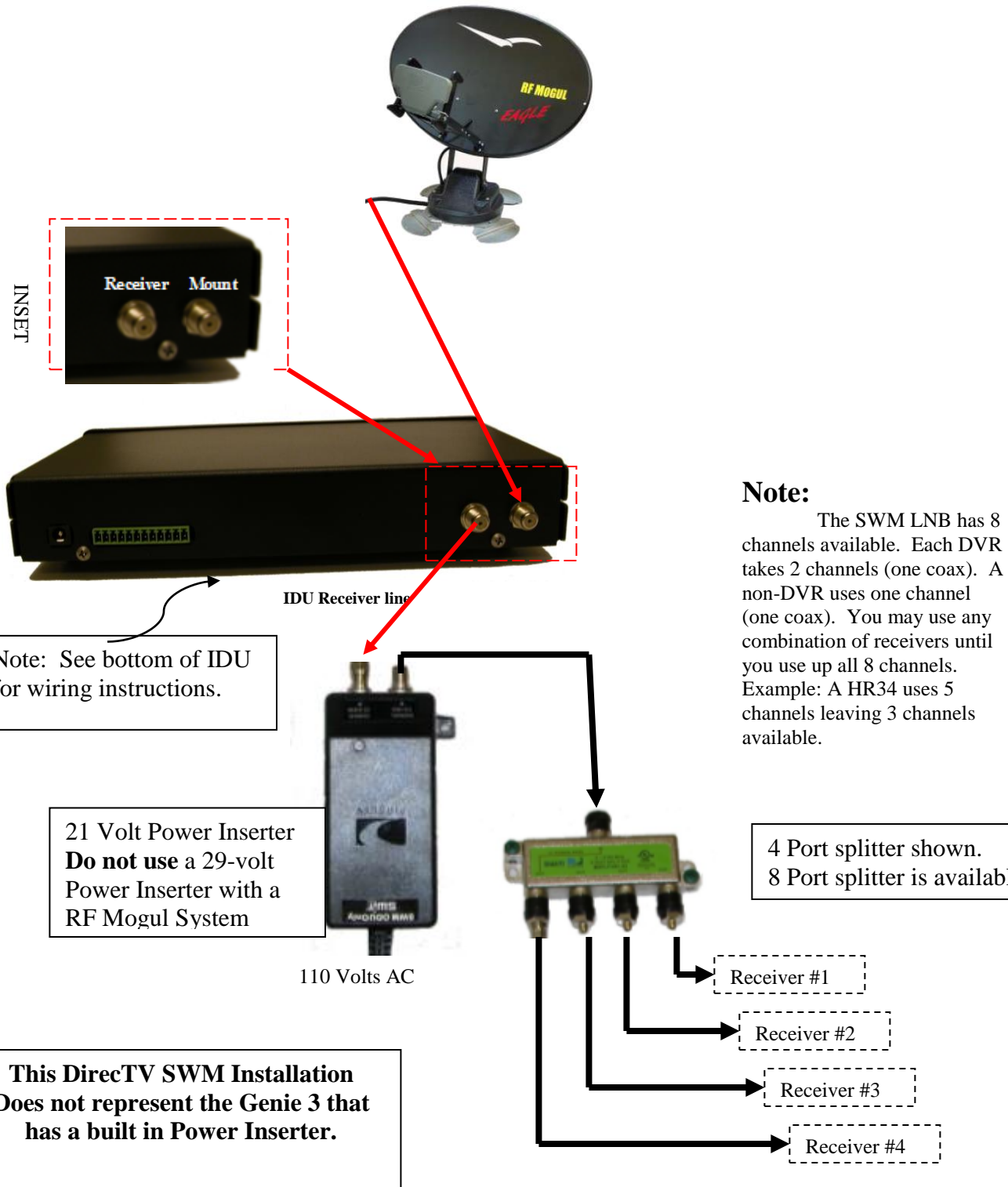
After removing the appropriate wires from the 12 Pin Green Connector, touch the following wires from the control cable directly to any +/- 12 VDC source, such as the 12-volt source located at the back of the controller or a drill battery. This will result in movement of the antenna. To reverse the direction, reverse the wires (+/-) on your battery.

- **ELEVATION** *Red and Orange* will raise and lower the antenna.
- **AZIMUTH** *Black and Brown* will rotate the mount on its base clockwise or counterclockwise
- **SKEW** *Yellow and Green* will tilt dish to the right or left.

Pin	Color	How Used	Where Used
1 =	BLACK	Motor	-Azimuth
2 =	BROWN	Motor	+Azimuth
3 =	RED	Motor	-Elevation
4 =	ORANGE	Motor	+Elevation
5 =	YELLOW	Motor	- Skew
6 =	GREEN	Motor	+Skew
7 =	BLUE	Count	Azimuth
8 =	VIOLET	Count	Elevation
9 =	GRAY	Count	Skew
10 =	WHITE	Ground	
11 =	PINK	12 Volts DC	GPS
12 =	TAN	GPS TXD	GPS

<u>Wire Color</u>	<u>Wire Function</u>
BLACK	+AZIMUTH
BROWN	-AZIMUTH
RED	+ELVATION
ORANGE	-ELVATION
YELLOW	- SKEW
GREEN	+SKEW

SWM Block Diagram



Note:

The SWM LNB has 8 channels available. Each DVR takes 2 channels (one coax). A non-DVR uses one channel (one coax). You may use any combination of receivers until you use up all 8 channels. Example: A HR34 uses 5 channels leaving 3 channels available.

Note: See bottom of IDU for wiring instructions.

21 Volt Power Inserter
Do not use a 29-volt Power Inserter with a RF Mogul System

4 Port splitter shown.
8 Port splitter is available

This DirectTV SWM Installation Does not represent the Genie 3 that has a built in Power Inserter.



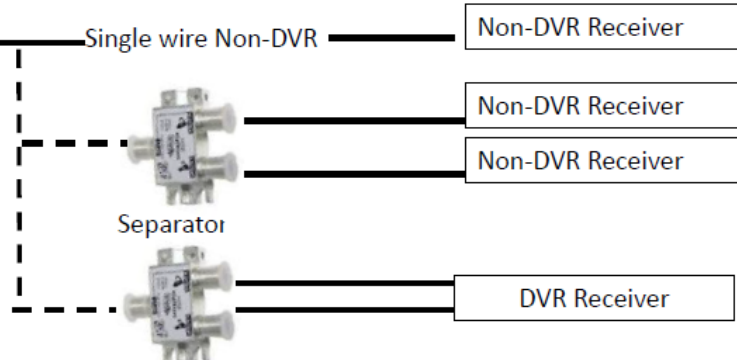
Dish Network System

Single Wire for

- One Non-DVR
- Two Non-DVR
- Two Non-DVR *or*
- One DVR

Note: The Eagle II controller *is always* between the mount (LNB) and the satellite receiver.

Insert Eagle II Controller Here

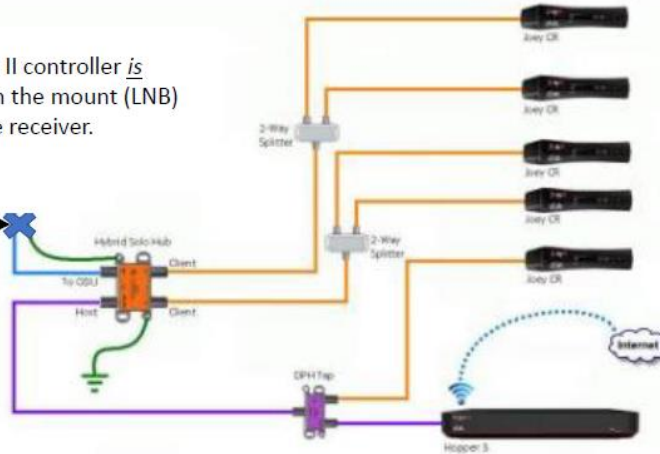


How to Wire a Dish Network Hopper 3 System

Single Coax

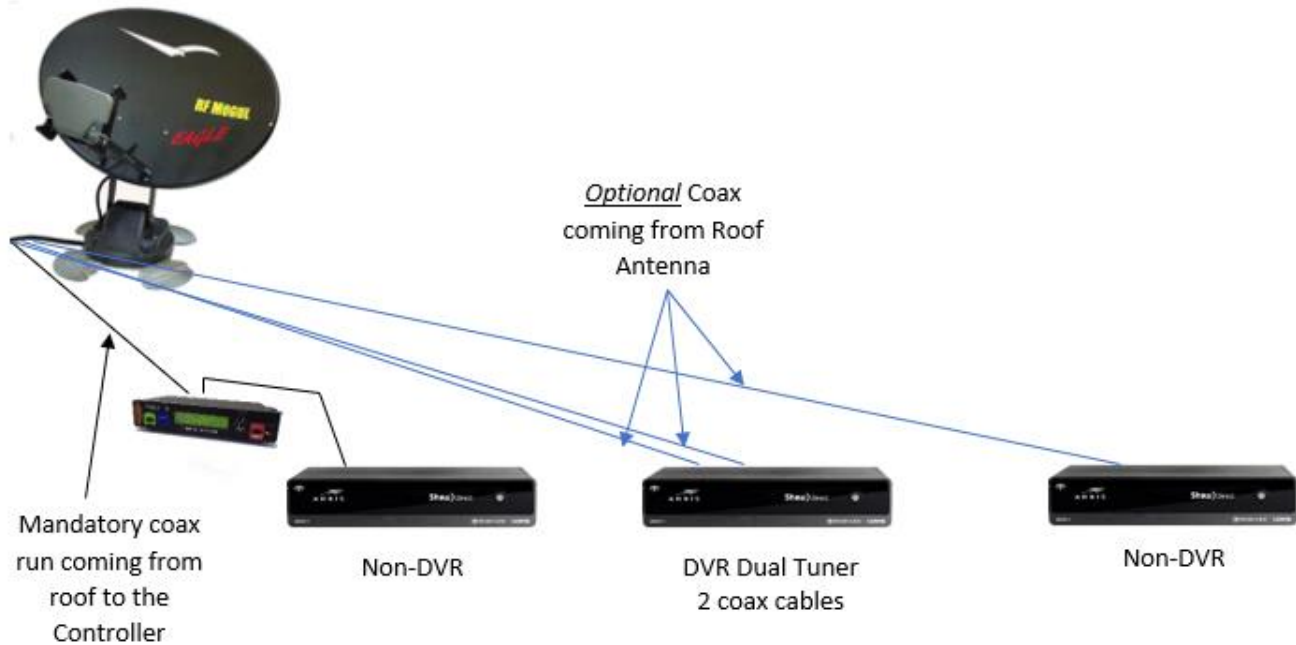
Note: The Eagle II controller *is always* between the mount (LNB) and the satellite receiver.

Insert Eagle II Controller Here



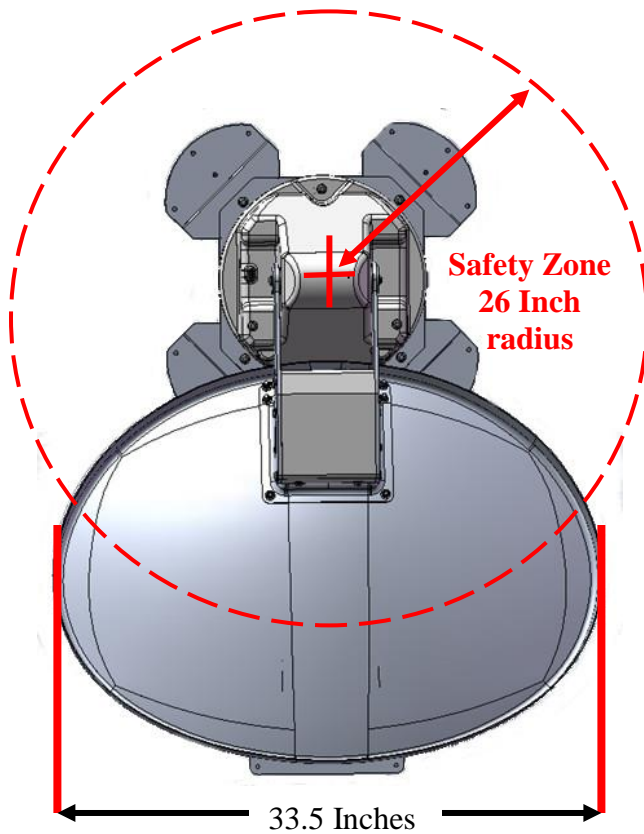
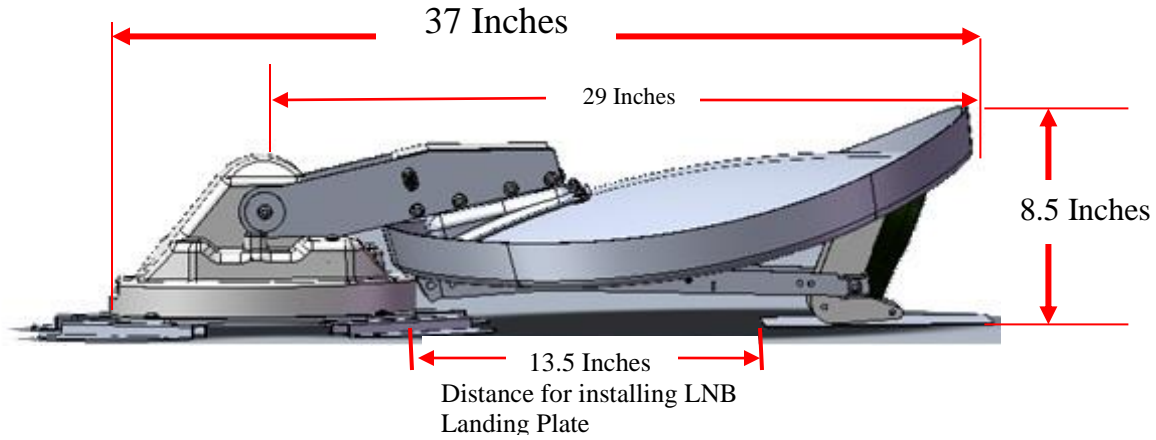
Hopper 3 Hybrid WA – 6 TVs

SHAW *Block Diagram*



Note: The SHAW system can be ordered with 4 coax cables. Standard configuration of the RF Mogul System is 3 coaxes unless ordered with 4. Most RV installations can survive with 3 (Two receivers, one non-DVR and one Dual Tuner. (Some SHAW DVR's take 2 coaxes. Single tuner non-DVR receivers use only one coax. One coax must come directly through the Eagle Controller and then can be routed to a non-DVR or DVR receiver.)

Footprint and Clearances



Rotational clearance from center rotation point is **26 inches** when dish is elevated and rotating. **This is a safety zone. Anything higher than 6 inches within this zone is at risk.**



CONTROLLER Dimensions
10" Wide
6" Deep
2" high

R *eturning Parts to the Factory*

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 comply may result in you being billed for a non-returned part.

We appreciate your business. If you need to contact us, please see the information below.

RF Mogul

3604 South Via Terra

South Salt Lake City, UT 84115

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