TracVision® BY KVH INDUSTRIES

TracVision M5/M7
Control Panel Configuration

TracVision M5/M7 User's Guide

TracVision M5/M7

MultiSat Control Panel Configuration

User's Guide

This user's guide provides all of the basic information you need to operate, set up, and troubleshoot the TracVision M5/M7 satellite TV antenna system. For detailed installation information, please refer to the *TracVision M5/M7 Installation Guide*.

Please direct questions, comments, or suggestions to:

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If you have any comments regarding this manual, please e-mail them to manuals@kvh.com. Your input is greatly appreciated!

KVH Part # 54-0419-02 Rev. A

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E TracVision M7 Wiring Diagrams

1. Introduction

This chapter provides a basic overview of this manual and your TracVision system.

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Using this Manual

This manual provides complete operation, setup, and troubleshooting information for your TracVision system, as well as wiring diagrams for various TracVision M5/M7 configurations.

Who Should Use This Manual

The **user** should refer to the "Operation" chapter to learn how to operate the system.

The **user**, **installer**, or **servicing technician** should refer to the "Settings" chapter for information on configuring the system and the "Wiring Diagram" appendices for information on connecting additional receivers.

The **installer** or **servicing technician** should refer to the "Advanced Settings and Functions" appendix for information on advanced setting and operational procedures.

The **user** and/or **servicing technician** should refer to the "Troubleshooting" chapter to help identify the cause of a system problem.

Notifications Used in this Manual

This manual uses the following notifications to call attention to important information:

CAUTION

This is a danger, warning, or caution notice. Be sure to read these carefully to avoid injury!

IMPORTANT!

This is an important notice. Be sure to read these carefully to ensure proper operation and configuration of your TracVision system.

NOTE: *This is a Note. Notes contain useful information about system settings.*

TIP: *This is a Tip. These contain helpful information, allowing you to get the most out of your TracVision system.Typographical Conventions*

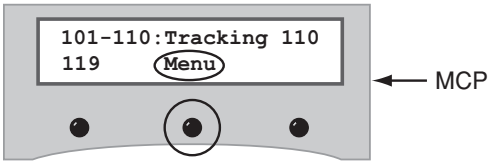
This manual uses the following typographical conventions:

Text Example	Description
`<Sat Name>` `###`	Text in brackets or the pound sign (#) indicates a variable portion of the MCP display
HALT	Bold text in capital letters indicates a command to be entered via a PC
X	Bold text in *italicized* capital letters indicates a variable portion of a command to be entered via a PC
"Turning the System On/ Off" on page 14	Cross-reference to another chapter in the manual or to a website

MCP (MultiSat Control Panel) Interface Conventions

When instructions indicate to select a specific MCP menu option, press the MCP button located directly beneath the menu option.

Figure 1-1 Example of MCP Menu Option and Corresponding Button.



Related Documentation

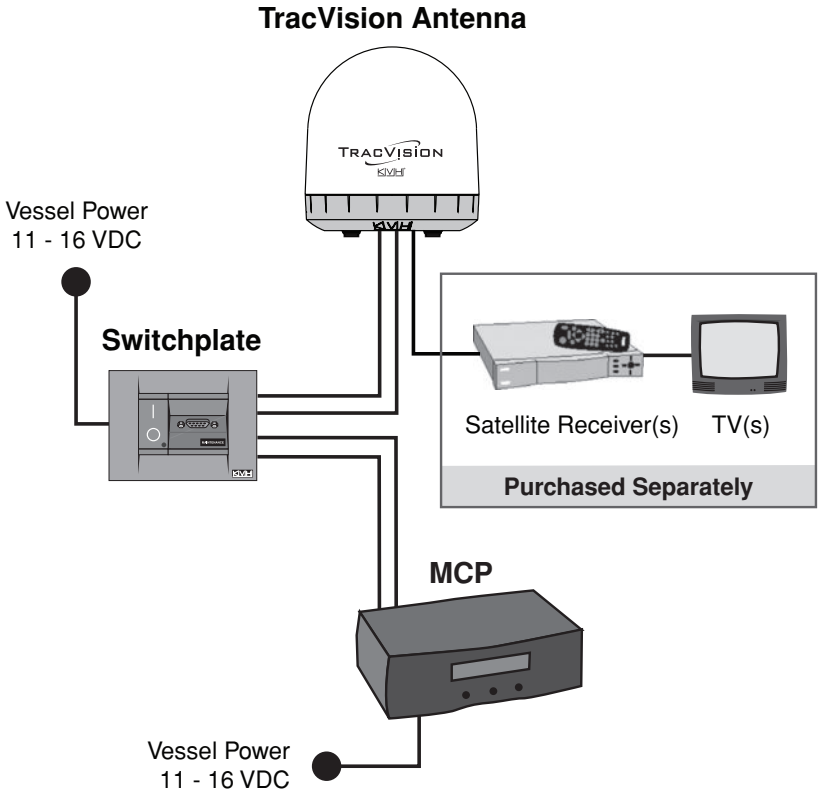
In addition to this User's Guide, the following documents are provided with your TracVision system:

Document	Description
Installation Guide	Complete product installation instructions
Product Registration Form	Details on registering the product
Warranty Statement	Warranty terms and conditions
Contents List	List of every part supplied in the kit

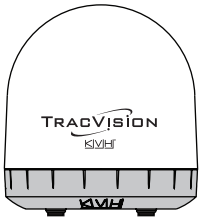
System Overview

Your TracVision system is a state-of-the-art, actively stabilized antenna system that delivers live satellite TV to your vessel's audio/video entertainment system. A basic system is illustrated below. TracVision M5 receiver wiring diagrams are provided in *"Appendix D" on page 87*. TracVision M7 receiver wiring diagrams are provided in *"Appendix E" on page 93*.

Figure 1-2 TracVision System Diagram (Basic Installation)



System Components



Antenna Unit
The antenna unit houses the antenna positioning mechanism, LNB (low noise block), and control elements within a radome. Weathertight connectors join the power, signal, and control cabling from the belowdecks units.

Switchplate
The switchplate controls power to the antenna and MCP (MultiSat Control Panel) via the On/Off switch.

MCP (MultiSat Control Panel)
The MCP is the system's user interface, providing access to the system and its functions through an LCD and three buttons. The MCP serves as the vessel's junction box, allowing the system to use vessel power and supply and receive data to/from the TracVision M5/M7. The MCP also allows tracking of up to three satellites and is compatible with DIRECTV HD equipment and service.

System Features

Your TracVision M5/M7 system uses integrated DVB technology to quickly acquire and track the correct satellite, switch between satellites, and send TV signals to the receiver.

In-motion Tracking

The TracVision M5/M7 system uses a state-of-the-art actively stabilized antenna system. Once the satellite is acquired, the system's internal gyros continuously measure the heading, pitch, and roll of your vessel and send commands to the antenna motors, keeping the antenna pointed at the satellite at all times - even while you're on the move!

TriSat Capability

Your TracVision M5/M7 is capable of tracking three selected satellites, as long as the antenna is located within the selected satellites' coverage area. During installation, your TracVision system should have been set up to track your desired satellites, allowing you to switch between your selected satellites quickly and easily.

DIRECTV HD (High-Definition) Capability (Circular Version Only)

The TracVision M5/M7's MCP enables DIRECTV HD service, and is compatible with DIRECTV HD equipment and service.

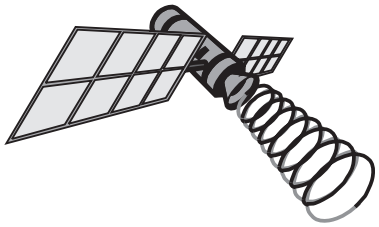
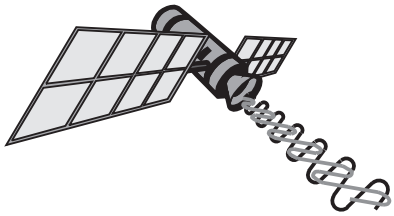
Satellite Library

The TracVision M5/M7 includes a pre-programmed satellite library of the most popular satellite services, offering a wide variety of satellite services to choose from. Using a PC, you can also add up to two additional satellites of your choice to the satellite library.

Circular and Linear Versions

Your TracVision system is configured for either circularly polarized satellite signals (North America) or linearly polarized satellite signals (Europe or Latin America). *Figure 1-3* illustrates the difference between these two polarizations.

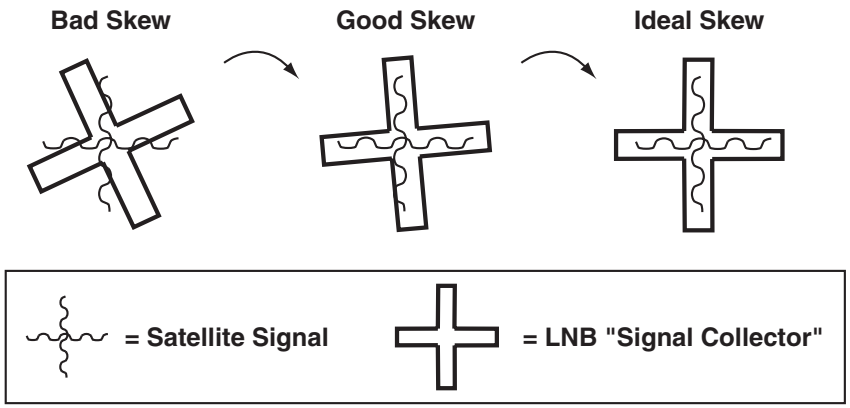
Figure 1-3 Polarizations of Satellite Signals

Circular	Linear
	
Signals transmitted in two "corkscrew" patterns, one running clockwise and one running counter-clockwise	Signals transmitted in vertical and horizontal "waves" offset exactly 90° from each other

LNB Skew Angle

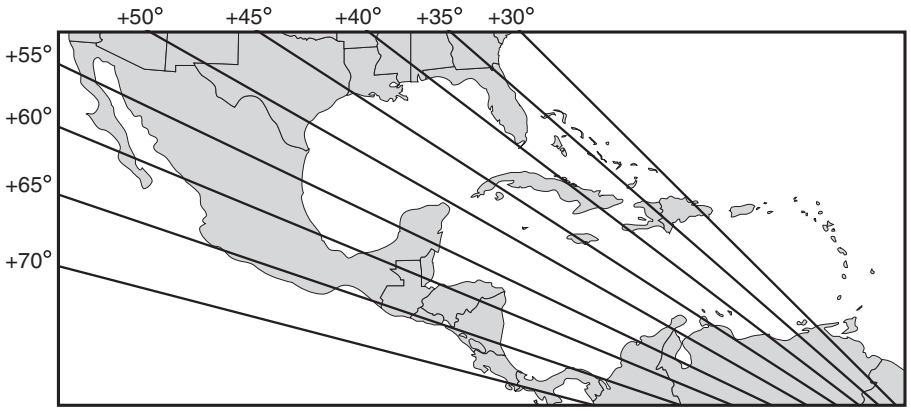
Since linear satellite signals are oriented in a precise cross pattern, the TracVision antenna's receiving element, called an LNB (low-noise block) must be oriented in the same way to optimize reception. This orientation adjustment is referred to as the LNB's "skew angle." *Figure 1-4* illustrates how skew determines the amount of signal the LNB collects. The more signal, the better the reception.

Figure 1-4 How Skew Works



The correct skew setting varies depending on your geographic location, since the orientation of your antenna to the satellite changes as you move. For example, as shown in *Figure 1-5*, if your antenna is tracking the PAS 9 satellite for Sky Mexico programming, the ideal skew setting ranges from +30 to +70, depending upon your location within the satellite's coverage area.

Figure 1-5 Approximate Skew Settings for the PAS 9 Satellite



For complete details about adjusting the LNB's skew angle, see *"Adjusting the Skew Angle" on page 45*.

2. Operation

This chapter explains everything you need to know to operate the TracVision system.

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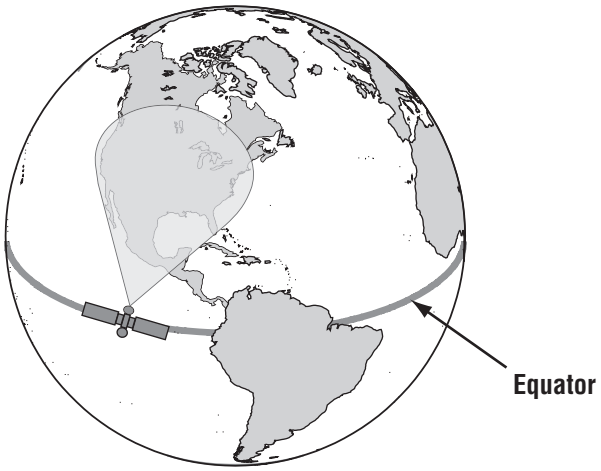
2

Receiving Satellite TV Signals

Television satellites are located in fixed positions above the Earth's equator and beam TV signals down to certain regions of the planet (not worldwide). To receive TV signals from a satellite, you must be located within that satellite's unique coverage area.

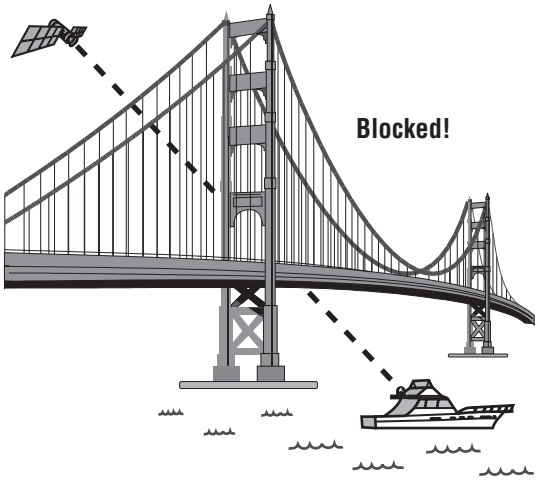
TIP: *For your convenience, KVH provides links to several websites that offer satellite coverage information. Simply visit our website at* ***www.kvh.com/footprint****.*

Figure 2-1 Location and Coverage Area of DIRECTV 101 Satellite



In addition, since TV satellites are located above the equator, the TracVision antenna must have a clear view of the sky to receive satellite TV signals. Anything that stands between the antenna and the satellite can block the signal, resulting in lost reception. Common causes of blockage include boat masts, trees, buildings, and bridges. Heavy rain, ice, or snow might also temporarily interrupt satellite signals.

Figure 2-2 Example of Satellite Blockage



Turning the System On/Off

Since power to the system is controlled by the switchplate, you can turn the TracVision system on or off using the switchplate.

Turning On the System

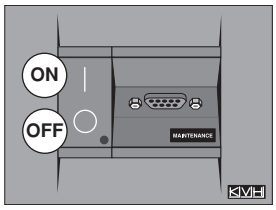
Follow the steps below to turn on your TracVision system.

1. Make sure the antenna has a clear view of the sky.
2. Turn on your satellite TV receiver and TV.

> ***IMPORTANT!***
>
> Avoid turning the vessel or changing channels for one minute after turning on the system.

3. Set the switchplate's Power switch to the on (up) position.

Figure 2-3 Switchplate Power Switch



4. Wait one minute for system startup.

Turning Off the System

Follow the steps below to turn off your TracVision system.

1. Set the switchplate's Power switch to the off (down) position.
2. Turn off your satellite TV receiver and TV.

Changing Channels and Switching Between Satellites (Linear Version Only)

Since some channels might be located on another satellite, changing channels might require switching to another selected satellite. During installation, your TracVision M5/M7 system should have been set up to track the satellite(s) of your choice and the channel guides for your selected satellite service should have been downloaded.

Your TracVision system can track up to three satellites, stored in memory as Satellite A, Satellite B, and Satellite C. If your system is set up to track three satellites, see *"Automatic TriSat Mode"* or *"Manual Trisat Mode" on page 17* for more information. If your system is set to track one or two satellites, see *"DualSat Mode" on page 17*.

IMPORTANT!

To ensure proper operation, the receiver(s) must be set up for the same satellites, and in the same order, they are set up in the antenna:

Antenna Satellite	Receiver Satellite	DiSEqC Setting
Sat. A	Alternative 1 or A	DiSEqC 1
Sat. B	Alternative 2 or B	DiSEqC 2
Sat. C	Alternative 3 or C	DiSEqC 3

NOTE: *TracVision M7 systems with more than four receivers require a multiswitch. Installation of a multiswitch requires using Manual TriSat Mode or DualSat Mode.*

TIP: *The primary receiver controls satellite selection; all other receivers can only receive channels carried on the satellite selected by the primary receiver. The primary receiver is the receiver connected to the antenna's RF1 connector.*

TIP: *If you want to change which satellites the system tracks, see* *"Setting the MCP to Track Different Satellites (Linear Version Only)" on page 27*.

Automatic TriSat Mode

In Automatic TriSat Mode, the antenna automatically switches between satellites within the selected TriSat group as the user changes channels on the receiver's remote control.

NOTE: *If you use the MCP to manually switch satellites, automatic satellite switching is disabled until the system is turned off, then turned back on. For more information on turning the system on/off, see* ***"Turning the System On/Off" on page 14***.

TIP: *TriSat groups and the satellites within each TriSat group are shown in* ***Figure 2-5***.

Figure 2-4 Automatic TriSat Mode Display

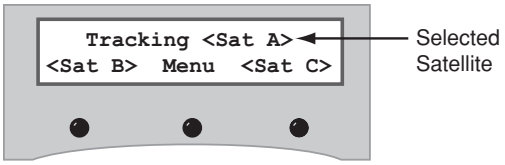


Figure 2-5 TriSat Groups

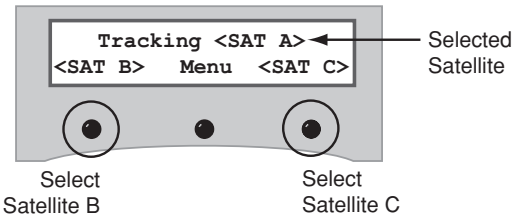
TriSat Group	Satellites
Europe WB (EWB)	Hotbird WB
	Astra 1
	Astra 2S
Europe (EUR)	Hotbird
	Astra 1
	Astra 2S
Scandinavia (SCN)	Hotbird WB
	Sirius
	Thor

Manual Trisat Mode

When the TracVision M5/M7 system is set to Manual TriSat Mode, a TriSat group is selected, allowing you to switch between the satellites within the group with a single button press.

TIP: *TriSat groups and the satellites within each TriSat group are shown in* *Figure 2-5 on page 16*.

Figure 2-6 Switching Satellites Using Manual TriSat Mode

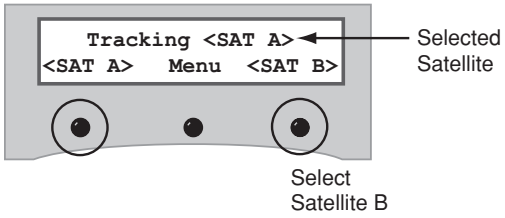


DualSat Mode

Most TracVision M5/M7 system configurations allow automatic satellite switching in DualSat Mode. When automatic switching is enabled, satellite switching occurs automatically while the user changes channels using the receiver's remote control. You can also use the MCP to manually switch between your selected pair of satellites with a single button press.

NOTE: *If you use the MCP to manually switch satellites, automatic satellite switching is disabled until the system is turned off, then turned back on. For more information on turning the system on/off, see* *"Turning the System On/Off" on page 14*.

Figure 2-7 Switching Satellites Using DualSat Mode



Circular Version Only

Changing Channels and Switching Between Satellites (Circular Version Only)

Since some channels might be located on another satellite, changing channels might require switching to another selected satellite. During installation, your TracVision M5/M7 system should have been set up to track the satellite(s) of your choice and the channel guides for your selected satellite service should have been downloaded.

Your TracVision system is set up to track up to three satellites, stored in memory as Satellite A, Satellite B, and Satellite C. If you are a DIRECTV HD subscriber, see *"Automatic TriSat Mode"* or *"Manual TriSat Mode" on page 19* for more information. If your system is set to track one or two satellites, see *"DualSat Mode" on page 20*.

NOTE: *TracVision M5/M7 systems with more than four receivers require a multiswitch. Installation of a multiswitch requires using Manual TriSat Mode or DualSat Mode. For information on configuration requirements, refer to the wiring diagram appendices located at the back of this manual.*

TIP: *The primary receiver controls satellite selection; all other receivers can only receive channels carried on the satellite selected by the primary receiver. The primary receiver is the receiver connected to the antenna's RF1 connector.*

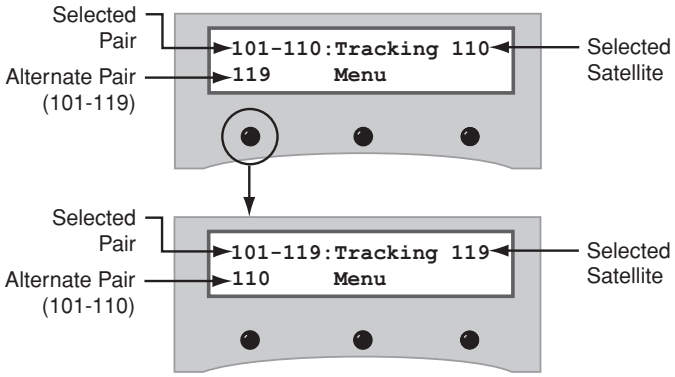
TIP: *If you want to change which satellites the system tracks, see* *"Setting the MCP to Track Different Satellites (Circular Version Only)" on page 37*.

Automatic TriSat Mode

In Automatic TriSat Mode (see *Figure 2-8 on page 19*), the antenna automatically switches between a pair of DIRECTV satellites as the user changes channels on the receiver's remote control. The user sets the MCP to automatically switch between either the DIRECTV 101-110 satellite pair or the DIRECTV 101-119 satellite pair.

NOTE: *Switching between the DIRECTV 119 and 110 satellites requires pressing the ADCU button (see Figure 2-8).*

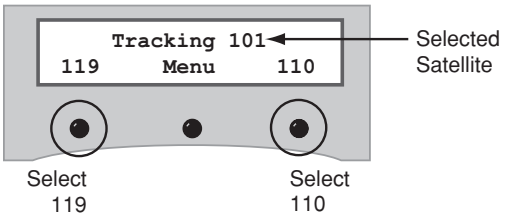
Figure 2-8 Switching Satellite Pairs Using Automatic TriSat Mode



Manual TriSat Mode

In Manual TriSat Mode, the user can switch between the DIRECTV 101, 110, and 119 satellites with a single button press.

Figure 2-9 Switching Satellites Using Manual TriSat Mode

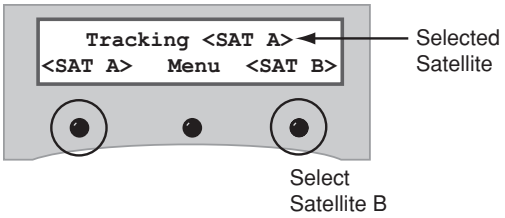


DualSat Mode

Most TracVision M5/M7 system configurations allow automatic satellite switching in DualSat Mode. When automatic switching is enabled, satellite switching occurs automatically while the user changes channels using the receiver's remote control. You can also use the MCP to manually switch between your selected pair of satellites with a single button press.

NOTE: *If you use the MCP to manually switch satellites, automatic satellite switching is disabled until the system is turned off, then turned back on. For more information on turning the system on/off, see* ***"Turning the System On/Off" on page 14****.*

Figure 2-10 Switching Satellites Using DualSat Mode



NOTE: *At this time, DISH Network supports only the standard-definition model 311 receiver for mobile use. All other receiver models have been designated for home use only; DISH Network subscribers must use DualSat Mode.*

DIRECTV HD Subscribers

This section contains operational information and tips specific to DIRECTV HD service.

How to Tell If You are On the Wrong Satellite

Since the DIRECTV program guide does not indicate which channel is on which satellite, how do you know which satellite is carrying the channel you wish to watch? Different receivers behave differently. However, there are generally four ways to tell if the channel that you selected is carried on another satellite:

- The wrong programming appears on the TV
- "Channel Not Available" appears on the TV
- "Buy Now" appears on the TV
- "Program Not Available in this Area" appears on the TV

If one of these situations occurs, simply switch to another satellite.

TIP: *For your convenience, KVH provides a list of HDTV channels and the DIRECTV satellites that carry them at* ***www.kvh.com/HDlineup****. KVH also provides a free notification service. If you sign up for this service, KVH will e-mail you whenever the HDTV lineup changes.*

TIP: *For more information on switching satellites, see* ***"Changing Channels and Switching Between Satellites (Circular Version Only)" on page 18.***

DIRECTV HD Activation and Availability

Your DIRECTV HD receiver must be configured as an "Oval, 3, LNB" dish type and be activated for HD service. Refer to your selected receiver's user manual for configuration instructions.

If you are unable to receive high-definition channels on your HD receiver, your receiver might not be configured correctly or activated for HDTV service. KVH can help you activate your DIRECTV HD service. Call KVH's Activation Department at:

1-888-584-4163
(Monday-Friday, 8:30 am - 5:00 pm ET)

TIP: *High-definition channels are not included with the basic DIRECTV package; you need to request that these special channels be added to your programming package. Premium HD channels, such as HBO HD, must be ordered separately.*

Product Care

Please consider the following antenna care guidelines for maintaining peak performance:

- Periodically wash the exterior of the antenna dome with fresh water and mild detergent. Avoid harsh cleansers and volatile solvents (such as acetone) and do not spray the dome directly with high-pressure water.

- If you wish to paint the dome, use only non-metallic automotive paint without a primer coat. Any paint that contains metal will block satellite signals and impair reception.

3. Settings

This chapter explains system settings and how to modify them using the MCP.

Contents

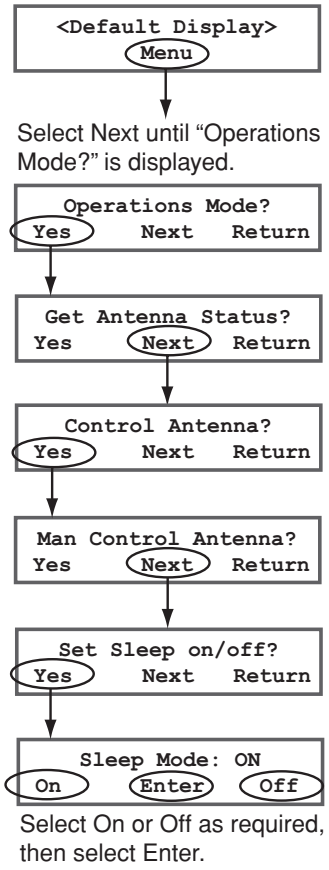
Changing the Sleep Mode Setting

When the vessel has come to a stop and holds its position for one minute (e.g., at a dock), the antenna unit enters Sleep Mode, which locks the antenna in place to conserve power. As soon as the vessel moves beyond a 1° - 2° window or the signal level changes significantly, Sleep Mode automatically turns off and the system begins tracking the satellite again.

KVH recognizes that some customers might not want to take advantage of this convenient feature. In this case, it is possible to disable Sleep Mode.

Use the flowchart in *Figure 3-1* if you wish to disable Sleep Mode, or if you wish to restore the original Sleep Mode setting.

Figure 3-1 Setting Sleep Mode On/Off



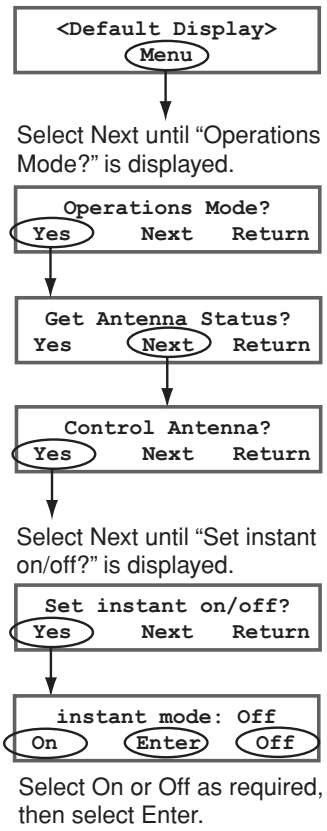
Changing the Instant On Setting

When Instant On is enabled, the antenna can immediately receive signals if the vessel has not moved since the antenna was last shut off. However, if the system is turned off, and then the vessel moves after last acquiring the satellite via Instant On, the antenna will undergo its standard initialization process once it is turned back on. This results in a brief delay.

TIP: *The default Instant On setting is off.*

Use the flowchart in ***Figure 3-2*** if you wish to enable Instant On, or if you wish to restore the original setting.

Figure 3-2 Instant On/Instant Off



Setting the MCP to Track Different Satellites (Linear Version Only)

If you wish to change which satellites your TracVision M5/M7 system tracks, you must perform the following:

1. Select a tracking mode
2. Update latitude and longitude data

3a. Set up Automatic/Manual TriSat Mode

3b. Set up DualSat Mode

4. Determine the skew angle (DualSat Mode Only)
5. Adjust the skew angle

TIP: *Be sure to only install satellites that your TracVision M5/M7 can track in your geographic location. For your convenience, KVH provides links to several websites that offer satellite coverage information. Simply visit our website at* ***www.kvh.com/footprint.***

Step 1 - Select a Tracking Mode

Automatic/Manual TriSat Mode

If you wish to track three satellites, the MCP must be set to a TriSat Mode. When a TriSat Mode is selected, you can switch between any three satellites within the selected TriSat group. *Figure 2-5 on page 16* lists the TriSat groups and satellites within each group.

DualSat Mode

Most TracVision M5/M7 system configurations allow automatic satellite switching in DualSat Mode. When automatic switching is enabled, satellite switching occurs automatically while the user changes channels using the receiver's remote control. You can also use the MCP to manually switch between your selected pair of satellites with a single button press. In DualSat Mode, you can set up the system to track any two satellites from the linear satellite library (see *Figure 3-3 on page 28*).

Linear Version Only

Figure 3-3 Linear Satellite Library

Satellite Location	Installation Name
26.0° E	ARABSAT
19.2° E	ASTRA1
28.2° E	ASTRA2N
28.2° E	ASTRA2S
7.0° E	EUTEL_W3A
30.0° W	HISPASAT
13.0° E	HOTBIRD
13.0° E	HOTBIRDWB
7.0° W	NILESAT
160.0° E	OPTUSB1*
156.0° E	OPTUSC1
58.0°W	PAS_9
110.5° E	SINOSAT*
5.0° E	SIRIUS
0.8° W	THOR
42.0° E	TURKSAT1C

**NOTE:* *Reception of these satellites requires additional hardware. Please contact your local KVH-authorized dealer or KVH Technical Support for details.*

NOTE: *If the satellite you wish to track is not listed, you can use a PC to add one or two special user-defined satellites. See* ***"Appendix C" on page 77*** *for details.*

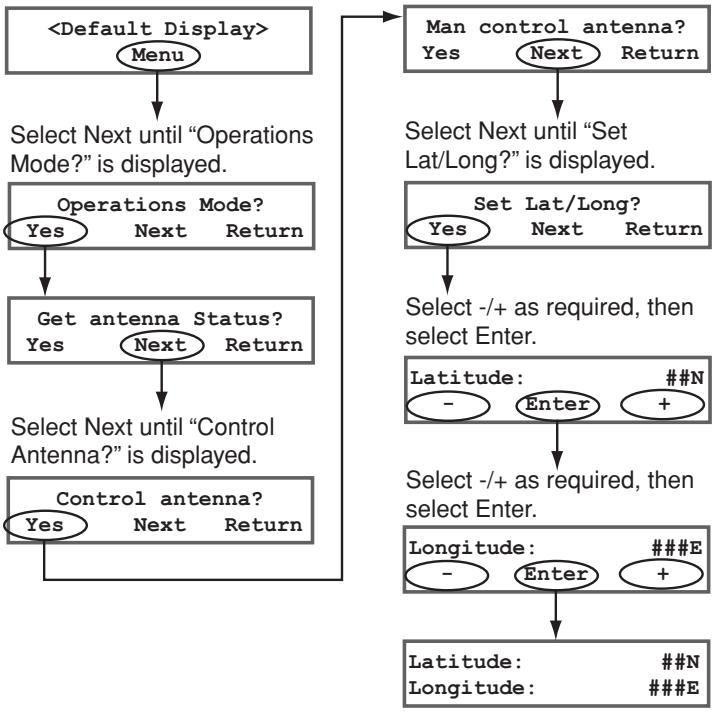
Step 2 - Update Latitude and Longitude Data

Use the flowchart in ***Figure 3-4*** to update your latitude and longitude data.

TIP: *For your convenience, you can determine your approximate latitude and longitude using the Position Grids provided in* ***"Appendix B" on page 73****.*

NOTE: *If you are setting the MCP to track satellites using TriSat Mode, skip to* ***"Step 3a - Set Up Automatic/Manual TriSat Mode" on page 30****.*

Figure 3-4 Updating Latitude and Longitude



Linear Version Only

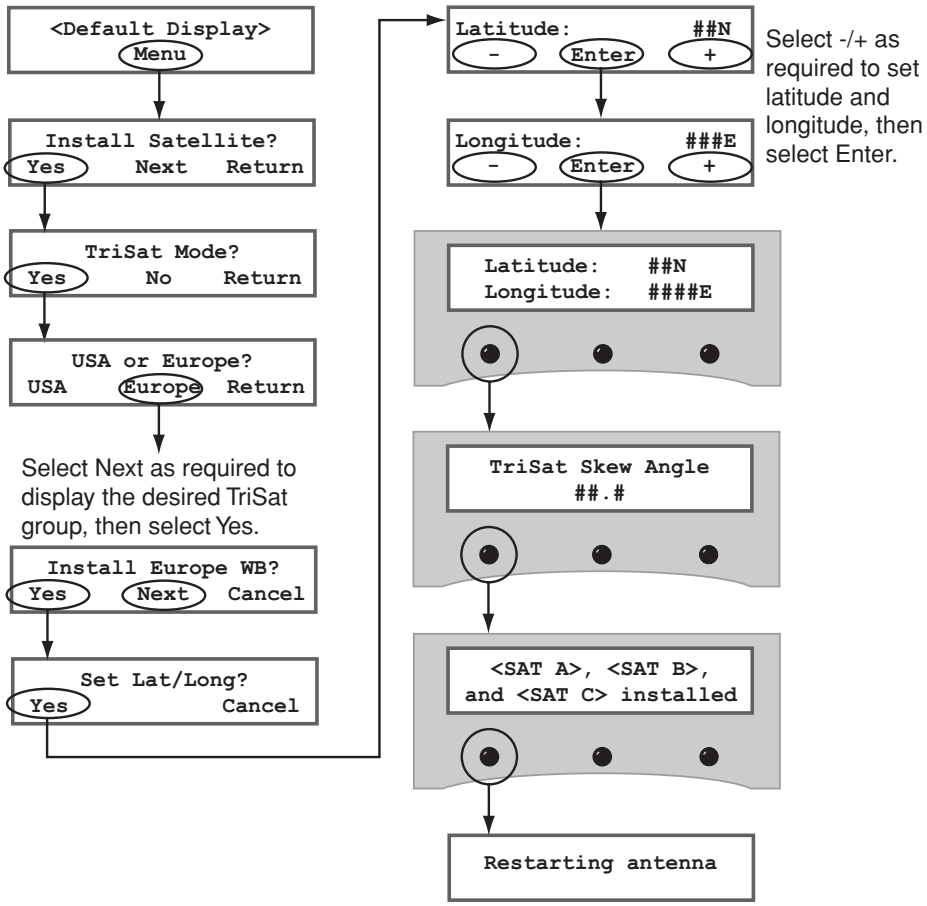
Step 3a - Set Up Automatic/Manual TriSat Mode

Use the flowchart in ***Figure 3-5*** to set the MCP to track satellites in Automatic/Manual TriSat Mode.

TIP: *A complete list of TriSat groups and the satellites in each group is provided in* ***Figure 2-5 on page 16****.*

NOTE: *Be sure to record the TriSat skew angle displayed in this procedure for later use. The TriSat skew angle is the average skew angle for the satellites within the selected TriSat group.*

Figure 3-5 Setting Automatic/Manual TriSat Mode

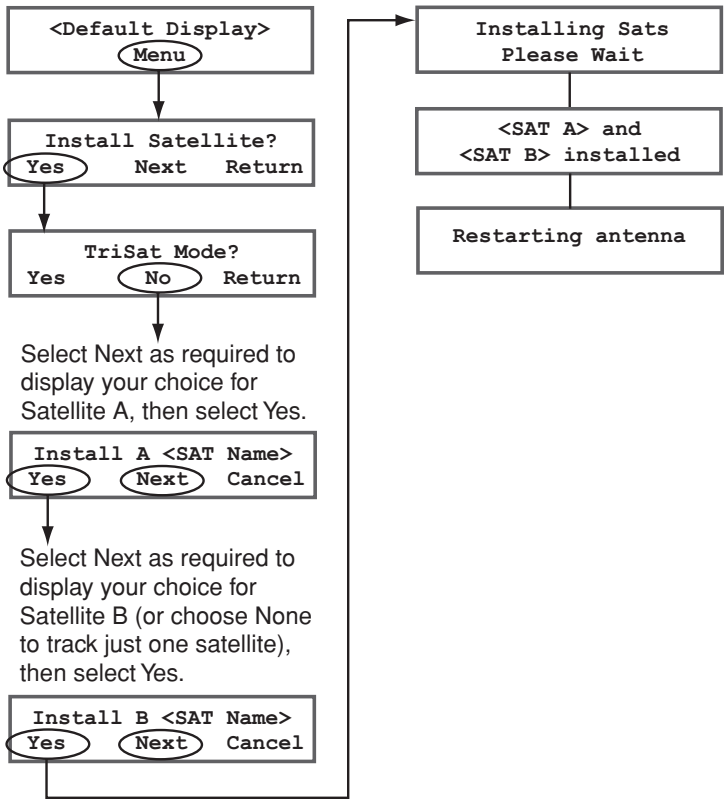


Step 3b - Set Up DualSat Mode

Use the flowchart in *Figure 3-6* to set the MCP to track satellites in DualSat Mode.

TIP: *A complete list of satellites in the linear satellite library is provided in Figure 3-3 on page 28.*

Figure 3-6 Setting DualSat Mode



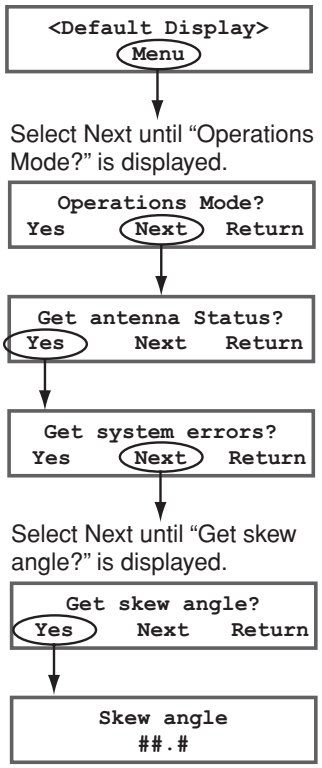
Linear Version Only

Step 4 - Determine the Skew Angle (DualSat Mode Only)

Use the flowchart in *Figure 3-7* to determine the skew angle for the selected satellite.

TIP: *Sky Mexico subscribers can also refer to* ***Figure 1-5 on page 10*** *for approximate skew setting for the PAS_9 satellite.*

Figure 3-7 Determining the Skew Angle



Step 5 - Adjust the Skew Angle

Once you have determined the proper skew angle, follow the steps below to adjust the antenna's LNB skew angle.

CAUTION

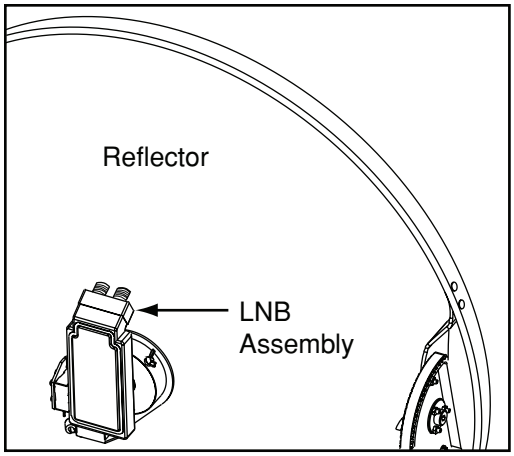
To avoid bodily injury, be sure to turn off the antenna and disconnect power to all wired components.

1. Turn off the antenna and disconnect power to all wired components.

2. Using a Phillips-head screwdriver, remove the screws securing the radome. Then remove the radome and set it aside in a safe place.

3. Locate the LNB assembly on the back of the antenna reflector.

Figure 3-8 Location of LNB on Back of Antenna Reflector



4. Loosen the two choke feed wing screws. The location of the wing screws varies according to TracVision model. Refer to *Figure 3-9* and *Figure 3-10*.

Figure 3-9 TracVision M5 Wing Screws

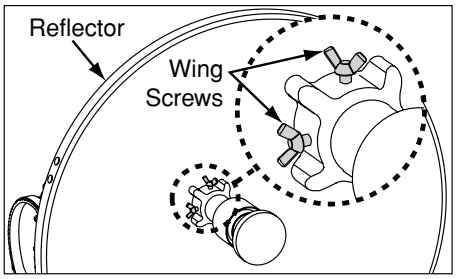
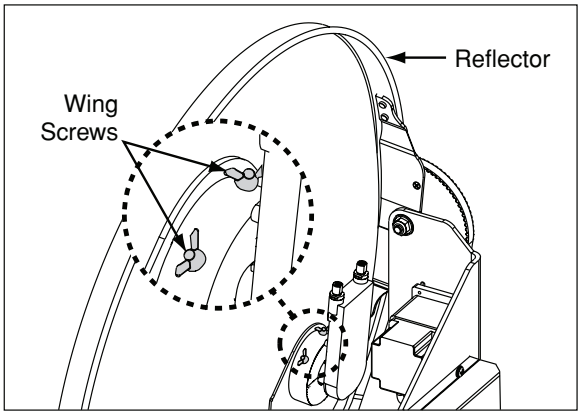


Figure 3-10 TracVision M7 Wing Screws

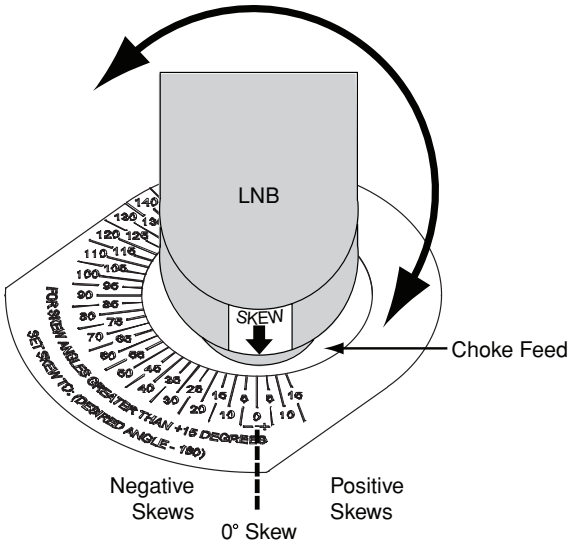


5a. TracVision M5 Only - Adjust the LNB clockwise or counter-clockwise, until the skew arrow on the LNB points to the skew angle that you determined earlier. If the skew angle is greater than +15° subtract 180 to get the equivalent negative skew angle and set the LNB to that angle instead.

IMPORTANT!

Be sure to keep the LNB fully inserted into the choke feed to ensure optimum performance.

Figure 3-11 TracVision M5 LNB Skew Angle Adjustment

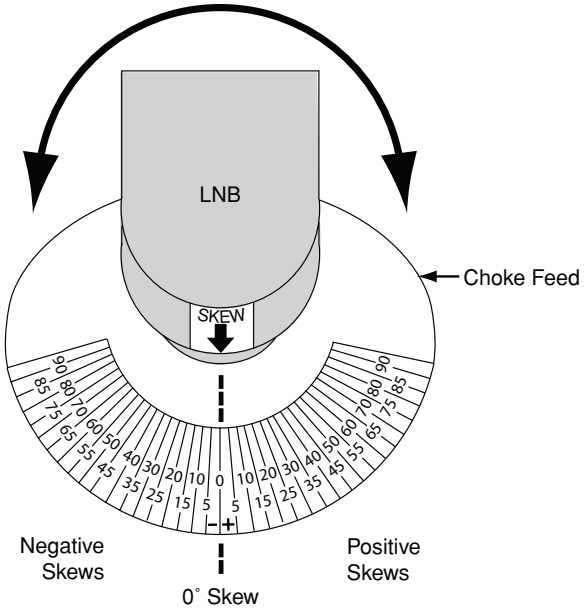


5b. TracVision M7 Only - Adjust the LNB clockwise or counter-clockwise, until the skew arrow on the LNB points to the skew angle that you determined earlier.

IMPORTANT!

Be sure to keep the LNB fully inserted into the choke feed to ensure optimum performance.

Figure 3-12 TracVision M7 LNB Skew Angle Adjustment



6. Tighten the wing screws.

7. Reinstall the radome.

Setting the MCP to Track Different Satellites (Circular Version Only)

If you wish to change which satellites your TracVision M5/M7 system tracks, you must perform the following:

1. Update latitude and longitude data
2. Select a tracking mode

3a. Set up Automatic TriSat Mode

3b. Set up Manual TriSat Mode

3c. Set up DualSat Mode

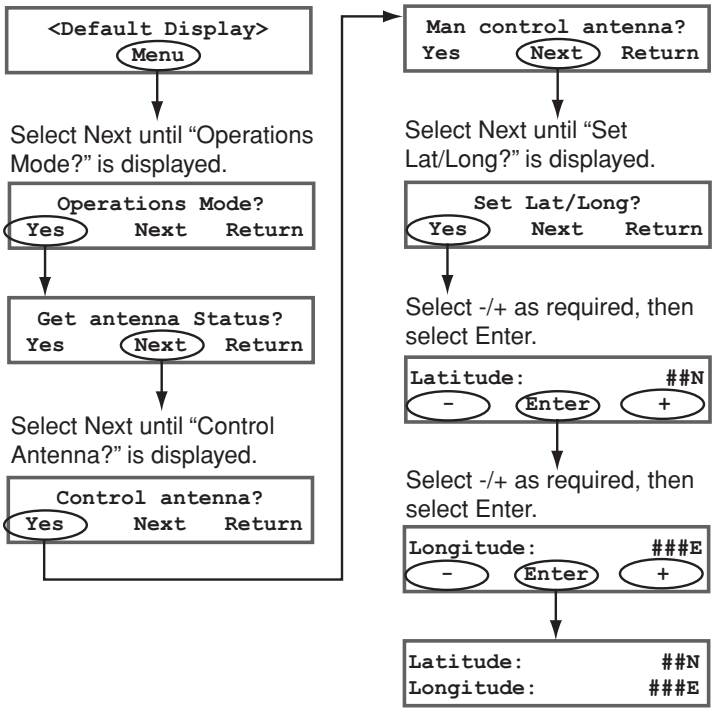
TIP: *Be sure to only install satellites that your TracVision M5/M7 can track in your geographic location. For your convenience, KVH provides links to several websites that offer satellite coverage information. Simply visit our website at* ***www.kvh.com/footprint****.*

Step 1 - Update Latitude and Longitude Data

Use the flowchart in ***Figure 3-13*** to update your latitude and longitude data.

TIP: *For your convenience, you can determine your approximate latitude and longitude using the Position Grids provided in* ***"Appendix B" on page 73****.*

Figure 3-13 Updating Latitude and Longitude



Circular Version Only

Step 2 - Select a Tracking Mode

Automatic TriSat Mode

If you set the system to Automatic TriSat Mode the DIRECTV 101, 110, and 119 satellites will be installed. When set to Automatic TriSat Mode, the antenna automatically switches between a pair of DIRECTV satellites as the user changes channels on the receiver's remote control. The user sets the MCP to automatically switch between either the DIRECTV 101-110 satellite pair or the DIRECTV 101-119 satellite pair.

Manual TriSat Mode

If you set the system to Manual TriSat Mode, the DIRECTV 101, 110, and 119 satellites will be installed. When set to Manual TriSat Mode, the user can switch between the DIRECTV 101, 110, and 119 satellites with a single button press.

DualSat Mode

Most TracVision M5/M7 system configurations allow automatic satellite switching in DualSat Mode. When automatic switching is enabled, satellite switching occurs automatically while the user changes channels using the receiver's remote control. You can also use the MCP to manually switch between your selected pair of satellites with a single button press. In DualSat Mode, you can set up the system to track any two satellites from the circular satellite library (see *Figure 3-14 on page 39*).

Figure 3-14 Circular Satellite Library

Satellite Service	Satellite Location	Installation Name
ASIASAT 4	122.2° E	ASIASAT*
DIRECTV	72.0° W	DSS_72
	101.0° W	DSS_101
	110.0° W	DSS_110
	119.0° W	DSS_119
DIRECTV Latin America	95.0° W	GALAXY3CN*
DISH Network	61.5° W	ECHO_61
	110.0° W	ECHO_110
	119.0° W	ECHO_119
	148.0° W	ECHO_148
ExpressVu	82.0° W	EXPRESSVU
	91.0° W	EXPRESSTV

***NOTE:** Reception of these satellites requires additional hardware. Please contact your local KVH-authorized dealer or KVH Technical Support for details.*

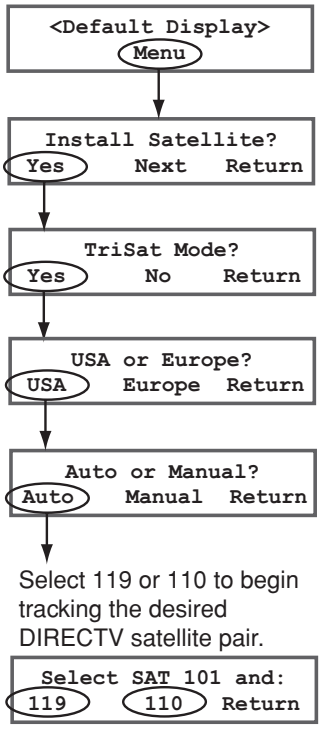
***NOTE:** If the satellite you wish to track is not listed, you can use a PC to add one or two special user-defined satellites. See "Appendix C" on page 77 for details.*

Circular Version Only

Step 3a - Set Up Automatic TriSat Mode

Use the flowchart in *Figure 3-15* if you wish to set the MCP to track the DIRECTV 101, 110, and 119 satellites in Automatic TriSat Mode.

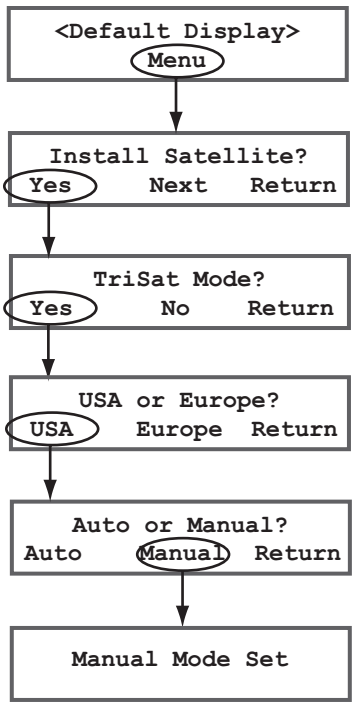
Figure 3-15 Setting Automatic TriSat Mode



Step 3b - Set Up Manual TriSat Mode

Use the flowchart in *Figure 3-16* if you wish to set the MCP to track the DIRECTV 101, 110, and 119 satellites in Manual TriSat Mode.

Figure 3-16 Setting Manual TriSat Mode

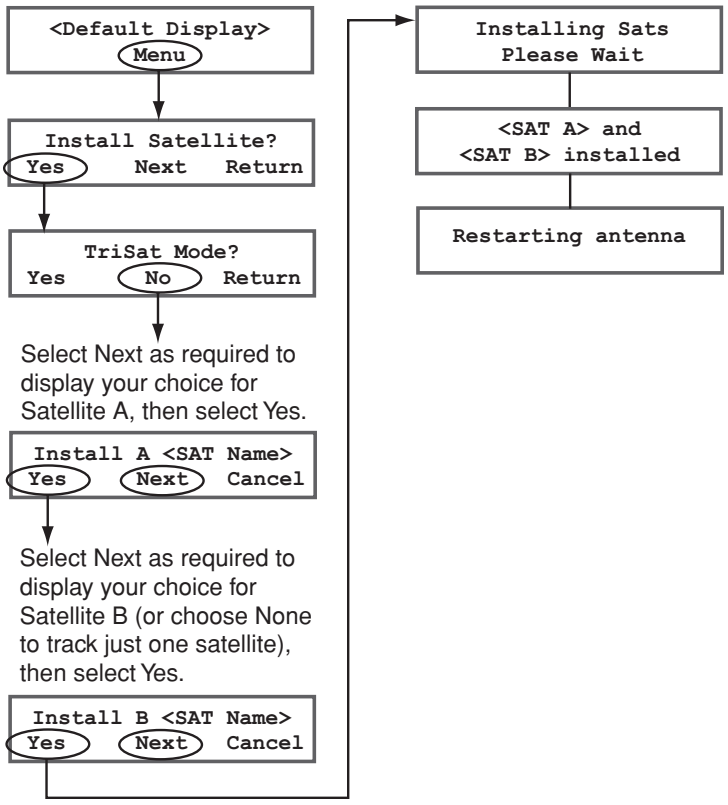


Circular Version Only

Step 3c - Set Up DualSat Mode

Use the flowchart in *Figure 3-17* if you wish to set the MCP to track satellites in DualSat Mode. For a list of satellites in circular satellite library, see *Figure 3-14 on page 39*.

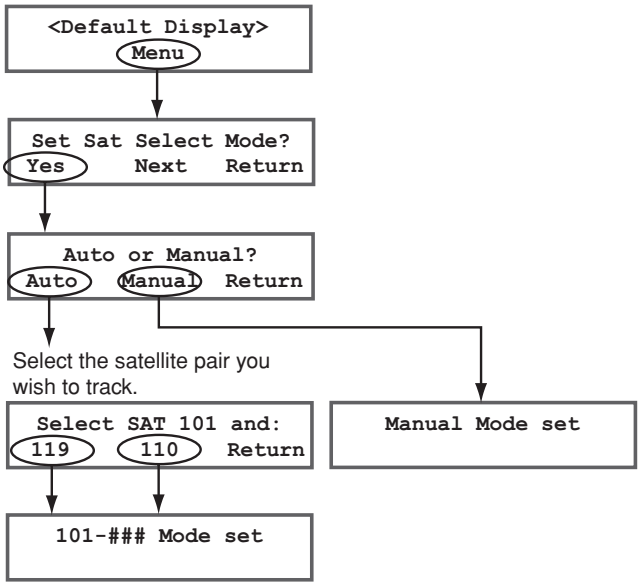
Figure 3-17 Setting DualSat Mode



Changing TriSat Modes (Circular Version Only)

Use the flowchart in *Figure 3-18* if you wish to change which TriSat Mode is used for tracking the DIRECTV 101, 110, and 119 satellites.

Figure 3-18 Changing TriSat Modes



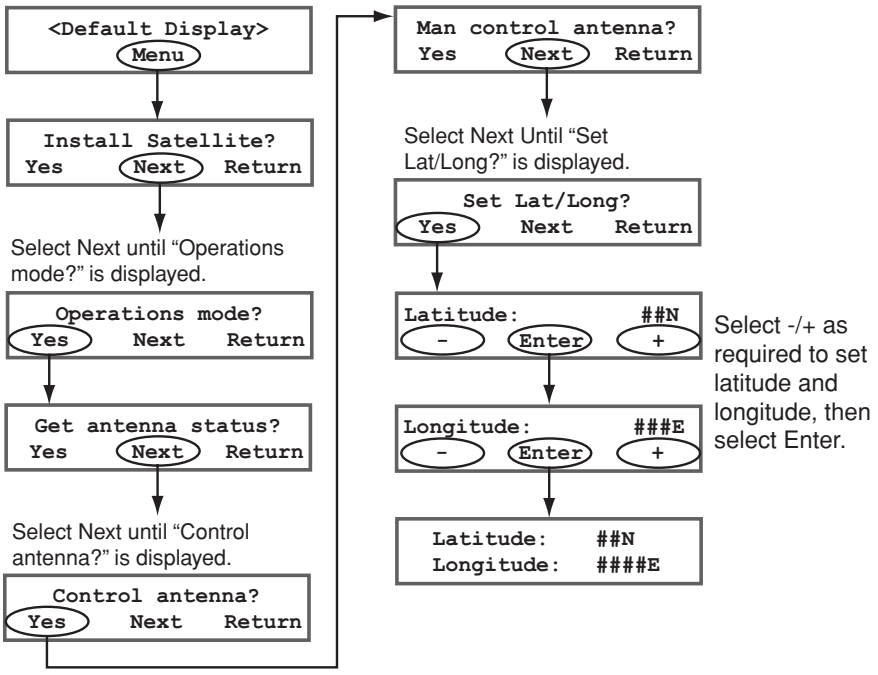
Updating Latitude and Longitude Data

Use the flowchart in ***Figure 3-19*** to update your latitude and longitude data.

TIP: *For your convenience, you can determine your approximate latitude and longitude using the Position Grids provided in* ***"Appendix B" on page 73****.*

> ***IMPORTANT!***
>
> You must restart the antenna after performing this procedure. For more information on restarting the antenna, see ***"Restarting the Antenna" on page 50***.

Figure 3-19 Updating Latitude and Longitude Data



Adjusting the Skew Angle

Once you have determined the proper skew angle, follow the steps below to adjust the antenna's LNB skew angle.

TIP: *If you need to determine the skew angle, see* ***"Setting the MCP to Track Different Satellites (Linear Version Only)" on page 27****.*

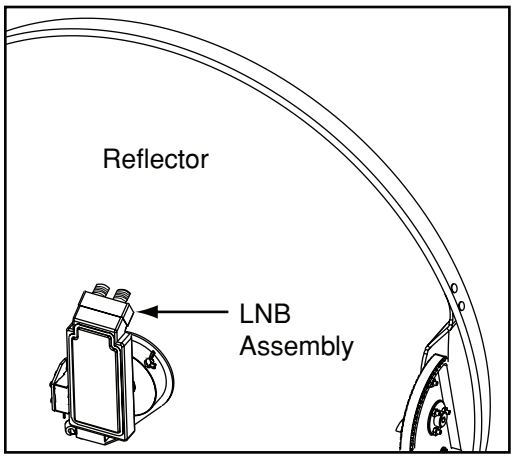
⚠ **CAUTION**
To avoid bodily injury, be sure to turn off the antenna and disconnect power to all wired components.

1. Turn off the antenna and disconnect power to all wired components.

2. Using a Phillips-head screwdriver, remove the screws securing the radome. Then remove the radome and set it aside in a safe place.

3. Locate the LNB assembly on the back of the antenna reflector.

Figure 3-20 Location of LNB on Back of Antenna Reflector



Linear Version Only

4. Loosen the two choke feed wing screws. The location of the wing screws varies according to TracVision model. Refer to *Figure 3-21* and *Figure 3-22*.

Figure 3-21 TracVision M5 Wing Screws

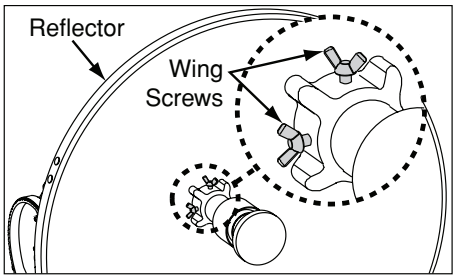
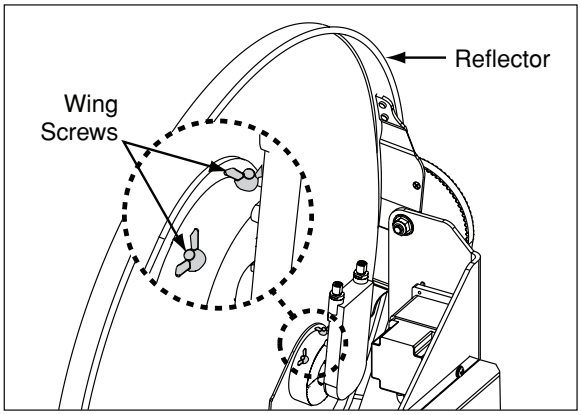


Figure 3-22 TracVision M7 Wing Screws

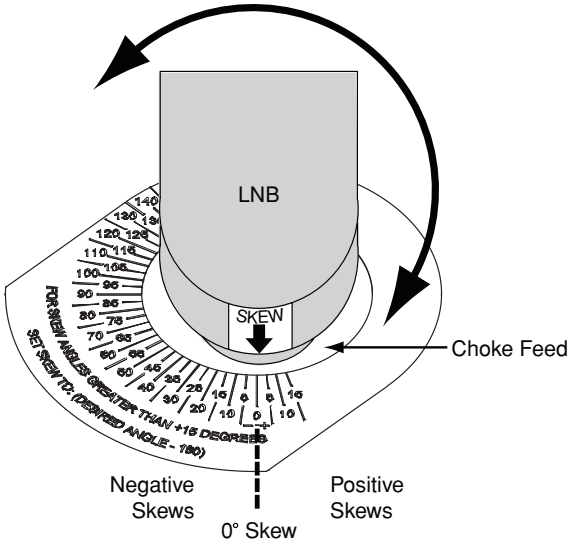


5a. TracVision M5 Only - Adjust the LNB clockwise or counter-clockwise, until the skew arrow on the LNB points to the skew angle that you determined earlier. If the skew angle is greater than +15° subtract 180 to get the equivalent negative skew angle and set the LNB to that angle instead.

IMPORTANT!

Be sure to keep the LNB fully inserted into the choke feed to ensure optimum performance.

Figure 3-23 TracVision M5 LNB Skew Angle Adjustment

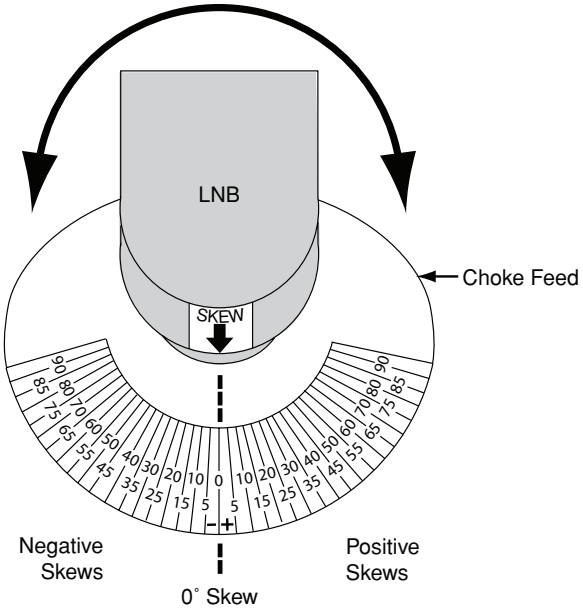


5b. TracVision M7 Only - Adjust the LNB clockwise or counter-clockwise, until the skew arrow on the LNB points to the skew angle that you determined earlier.

IMPORTANT!

Be sure to keep the LNB fully inserted into the choke feed to ensure optimum performance.

Figure 3-24 TracVision M7 LNB Skew Angle Adjustment



6. Tighten the wing screws.

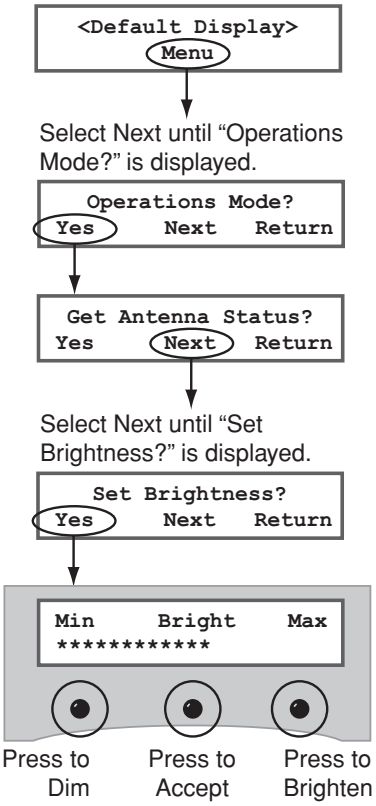
7. Reinstall the radome.

Adjusting Display Brightness

The MCP display brightness can be adjusted to suit your preferences.

Use the flowchart in *Figure 3-25* if you wish to adjust the display brightness, or if you wish to restore the original brightness setting.

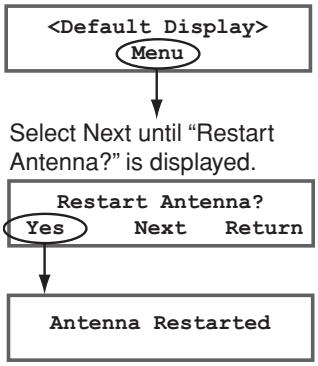
Figure 3-25 Setting Display Brightness



Restarting the Antenna

Use the flowchart in *Figure 3-26* if you wish to restart the antenna.

Figure 3-26 Restarting the Antenna



4. Troubleshooting

This chapter identifies potential basic problems along with their possible causes and solutions. It also explains how to get technical support.

Contents

Five Simple Checks

If you are experiencing a problem receiving satellite TV with your TracVision system, perform the five simple checks below.

TIP: *You can also try resetting the satellite TV receiver. Turn off and unplug the receiver, wait one minute, then plug it back in and turn it back on.*

Can the antenna see the satellite?

The antenna requires an unobstructed view of the sky to receive satellite TV signals. Common causes of blockage include trees, buildings, bridges, and mountains.

Is there excessive dirt or moisture on the antenna dome?

Dirt buildup or moisture on the dome can reduce satellite reception. Clean the exterior of the dome periodically.

Is it raining heavily?

Heavy rain or snow can weaken satellite TV signals. Reception should improve once the inclement weather subsides.

Is everything turned on and connected properly?

Make sure your TV and receiver are both turned on and set up for the satellite input. Finally, check any connecting cables to ensure none have come loose.

Is the antenna's LNB set to the correct skew angle? (Linear Systems Only)

To optimize reception, the antenna's LNB needs to be set to the correct skew angle for the satellite(s) you want to track. See ***"Adjusting the Skew Angle" on page 45*** for details.

Troubleshooting Matrix

The troubleshooting matrix identifies potential operational symptoms and their causes and remedies. *"Causes and Remedies for Operational Issues" on page 55* contains detailed information on the causes and remedies listed below.

Figure 4-1 Troubleshooting Matrix

SYMPTOM / CAUSES AND REMEDIES	Receiver fault or improper receiver configuration	Antenna powered off	Antenna tracking wrong satellite	Satellite signal blocked	Satellite coverage issue	MCP set to manual mode	Loose RF connectors	Improper wiring	Cable unwrap
System non-functional	X	X						X	
"Channel Not Available" message on TV	X		X	X					
Wrong programming shown on selected channel			X						
"Searching for Satellite Signal" message on TV		X	X	X	X				
Certain channels do not work	X					X		X	
Antenna not switching satellites correctly	X						X	X	
Program Guide does not load	X	X	X	X					
Only Preview channels (100, 201) are viewable	X								
Intermittent picture for short intervals	X			X	X		X		X
Channels on 110 satellite not viewable; others OK				X	X		X		
Snowy television picture	X						X	X	
"Antenna Not Responding" message on control panel		X					X	X	

Causes and Remedies for Operational Issues

This section addresses the most common operational issues that can affect the performance of the TracVision M5/M7. If your TracVision system requires service, you can visit any KVH-authorized dealer or distributor for assistance. To find a KVH-authorized dealer near you, visit *www.kvh.com/wheretogetservice*.

Receiver Fault or Improper Receiver Configuration

Receiver Fault

Your satellite TV receiver might be set up incorrectly or defective. First check the receiver's configuration to ensure it is set up for the desired programming. In the case of a faulty receiver, refer to your selected receiver's user manual for service and warranty information.

Improper Receiver Configuration (DIRECTV HD Subscribers Only)

Before you can start enjoying high-definition programming, the DIRECTV HD receiver must be configured as an "Oval,3,LNB" dish type and must be activated for HD service (see *"DIRECTV HD Subscribers" on page 21*). Refer to your selected receiver's user manual for more information.

Ensure that the receiver has completely downloaded the channel guide. If the channel guide is not downloaded in its entirety, the "Channel Not Available" message might appear.

Improper Receiver Configuration (Linear Systems Only)

To ensure proper operation, the receiver(s) must be set up for the same satellites, and in the same order, they are set up in the antenna:

Antenna Satellite	Receiver Satellite	DiSEqC Setting
Sat. A	Alternative 1 or A	DiSEqC 1
Sat. B	Alternative 2 or B	DiSEqC 2
Sat. C	Alternative 3 or C	DiSEqC 3

Antenna Powered Off

The TracVision antenna must be turned on for the system to operate. If the system is not functioning, check the switchplate's power switch or the circuit breaker to ensure the antenna is turned on.

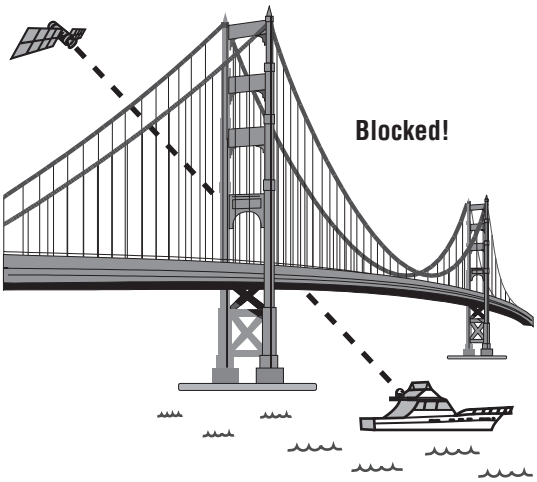
Antenna Tracking Wrong Satellite (DIRECTV HD Subscribers Only)

If you select a channel on the receiver, but the wrong programming or no programming appears on the TV, that channel might be carried on a different satellite. See *"DIRECTV HD Subscribers" on page 21* for more information.

Satellite Signal Blocked

Since TV satellites are located above the equator, the TracVision antenna must have a clear view of the sky to receive satellite TV signals. Anything that stands between the antenna and the satellite can block the signal, resulting in lost reception. Common causes of blockage include boat masts, trees, buildings, and bridges. Heavy rain, ice, or snow might also temporarily interrupt satellite signals.

Figure 4-2 Example of Satellite Blockage

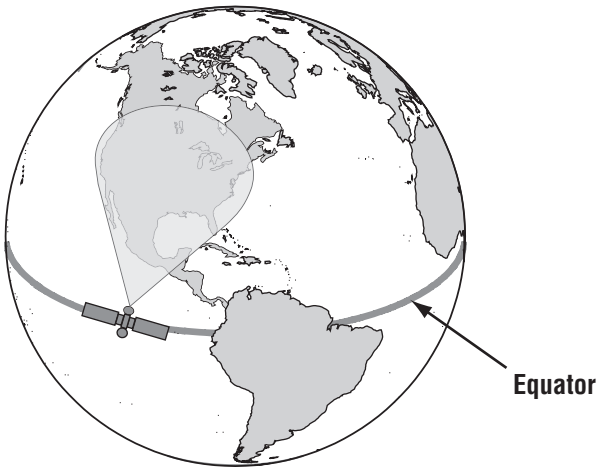


Satellite Coverage Issue

Television satellites are located in fixed positions above the Earth's equator and beam TV signals down to certain regions of the planet (not worldwide). To receive TV signals from a satellite, you must be located within that satellite's unique coverage area.

TIP: *For your convenience, KVH provides links to several websites that offer satellite coverage information. Simply visit our website at* ***www.kvh.com/footprint****.*

Figure 4-3 Location and Coverage Area of DIRECTV 101 Satellite



MCP Set to Manual Mode (DIRECTV HD Subscribers Only)

If your TracVision system does not automatically switch between satellites when you change channels on the receiver's remote control, the MCP might be set to Manual Mode. See ***"Changing Channels and Switching Between Satellites (Circular Version Only)" on page 18*** for more information.

Loose RF Connectors

KVH recommends periodically checking the antenna unit's cable connections. A loose RF connector can reduce signal quality or prevent automatic satellite switching using the receiver's remote control. Refer to the *TracVision M5/M7 Installation Guide* for complete system wiring information or visit any KVH-authorized dealer or distributor for assistance. To find a KVH-authorized dealer near you, visit ***www.kvh.com/wheretogetservice***.

Improper Wiring

If the system has been improperly wired, the antenna will not operate correctly. Refer to the *TracVision M5/M7 Installation Guide* for complete system wiring information or visit any KVH-authorized dealer or distributor for assistance. To find a KVH-authorized dealer near you, visit ***www.kvh.com/wheretogetservice***.

Cable Unwrap

If your vessel makes several consecutive circles in the same direction, the antenna will rotate 720° before reaching the end of its internal cable. If this occurs, the system will automatically unwrap the cable by quickly rotating the antenna dish in the opposite direction. During this time, your TV picture will freeze momentarily.

Technical Support

The TracVision M5/M7 antenna is a sophisticated electronic device; only KVH-authorized technicians have the specialized tools and expertise necessary to diagnose and repair a system fault. Therefore, if you experience any operating problem or require technical assistance, please call or visit your local authorized TracVision dealer or distributor. You can find an authorized technician near you by visiting our website at *www.kvh.com/wheretogetservice*.

If you need help finding an authorized technician, please contact KVH Technical Support:

North American, South America, Australia, New Zealand:
Phone: +1 401 847-3327
E-mail: *techs@kvh.com*

Europe, Middle East, Asia:
Phone: +45 45 160 180
E-mail: *support@kvh.dk*

Please have your antenna serial number handy before you call. For information on retrieving your antenna serial number, refer to *"Displaying the Antenna Serial Number" on page 70*.

Field Replaceable Units

If you experience any operating problem or require technical assistance, please call or visit your local authorized TracVision dealer or distributor. To find a KVH-authorized dealer near you, visit *www.kvh.com/wheretogetservice*.

Part numbers for field replaceable units (FRUs) that can be serviced in the field are listed in *Figure 4-4* and *Figure 4-5 on page 61*. These parts can be obtained from any KVH-authorized dealer or distributor.

Figure 4-4 Field Replaceable Units (continued on next page)

Part	Part Number
Radome (TracVision M5 Only)	02-0925-07†
Radome (TracVision M7 Only)	02-1047-05†
Main PCB (printed circuit board)	72-0258
RF PCB (printed circuit board)	72-0259
Inverter PCB (printed circuit board)	72-0260
Gyro	72-0261
Elevation drive belt	72-0263
Elevation motor	72-0262
Azimuth limit switch (TracVision M7 Only)	72-0264

†Specify color when ordering

Figure 4-4 Field Replaceable Units (continued)

LNB - circular dual-output	72-0265
LNB - Galaxy circular dual-output	72-0266
LNB - linear dual-output	72-0267
LNB - linear quad-output (TracVision M7 Only)	72-0268
Feed tube	72-0269
Antenna data cable, 50 ft.	32-0619-50
Antenna data cable, 100 ft.	32-0619-100
Antenna power cable, 100 ft.	32-0510-100
Ground cable, 50 ft.	32-0583-50

Figure 4-5 MCP Field Replaceable Units

Part	**Part Number**
MCP (MultiSat Control Panel)	02-1401
MCP main control cable (9-pin male to 9-pin male), 25 ft.	32-0716-25
MCP RF control cable (9-pin female to RJ22), 25 ft.	32-0811
MCP flash cable (9-pin female to stereo plug), 5.9 ft.	32-0807
Maintenance port assembly (for MCP interface)	02-1192
MCP rear-panel fuse, 0.5 amp	16-0017-0500

Appendix A Advanced Settings and Functions

This appendix contains information on advanced settings and functions. This information should only be utilized by KVH-authorized technicians.

Contents

A

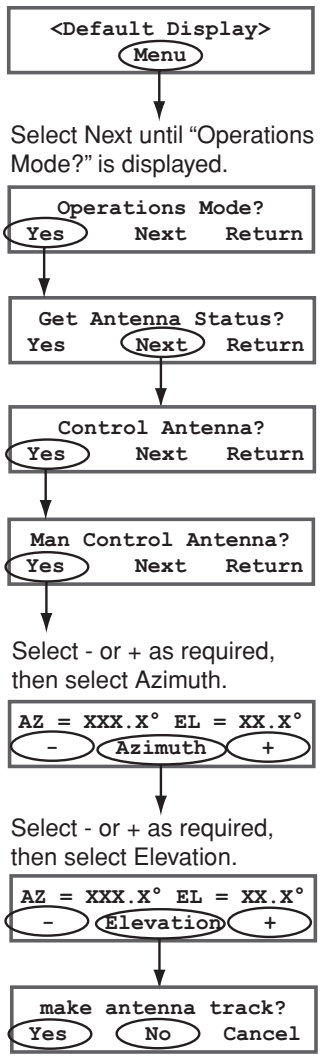
Manually Controlling the Antenna

Use the flowchart in ***Figure A-1*** if you wish to control the antenna manually.

NOTE: *If you are performing this procedure as part of the satellite frequency scan update procedure, be sure to select "NO" at the "Make Antenna Track" screen.*

TIP: *Once you have finished positioning the antenna, the system will revert to automatic control.*

Figure A-1 Manually Controlling the Antenna



Updating Satellite Frequency Data

If the antenna is unable to find a satellite, or if you are unable to receive certain channels, the satellite's frequency data might have changed. The satellite frequency scan feature allows you to update the frequency data of any satellite stored in the system's library.

With the desired satellite, band, and polarization selected, the system will automatically search for the frequency with the strongest signal. The system will then update that satellite's programmed data with the new frequency (and associated network ID) and store it in the satellite library.

You will need to enter the following information:

- Symbol rate
- FEC code

TIP: *You can find satellite information on the web at* ***www.lyngsat.com*** *or* ***www.satcodx.com*** *(neither website is affiliated with KVH).*

To update the satellite frequency data, follow the steps below.

IMPORTANT!

The vessel must remain stationary throughout this procedure.

1. Set your satellite receiver to signal meter mode. Refer to your selected receiver's user manual for details.

   IMPORTANT!

   Ensure that the TV signal meter indicates that you have a strong signal.

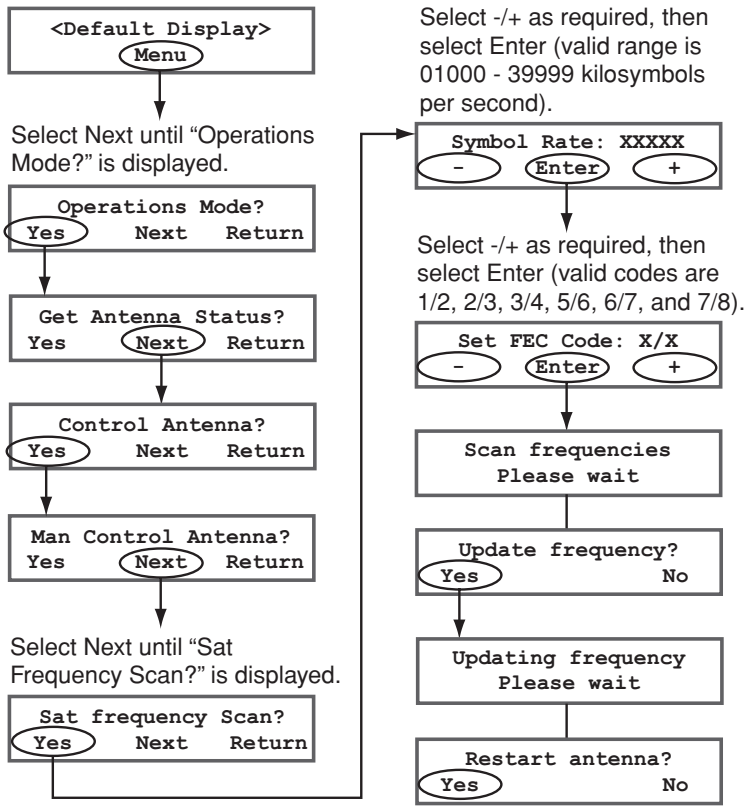
2. If the system is unable to locate the selected satellite, you can manually point the antenna. Refer to ***"Manually Controlling the Antenna" on page 65*** for details.
3. Using the receiver, select the desired polarization and band you wish to update. Refer to your selected receiver's user manual for details.

4. Use the flowchart in *Figure A-2* to scan the frequency data of the selected satellite.

   TIP: *If you know the satellite configuration data, you can configure the satellite without scanning frequency data (see* ***"Configuring Satellite Settings" on page 68****).*

   TIP: *Scanning satellite frequencies might take up to 10 minutes.*

Figure A-2 Scanning Frequency Data



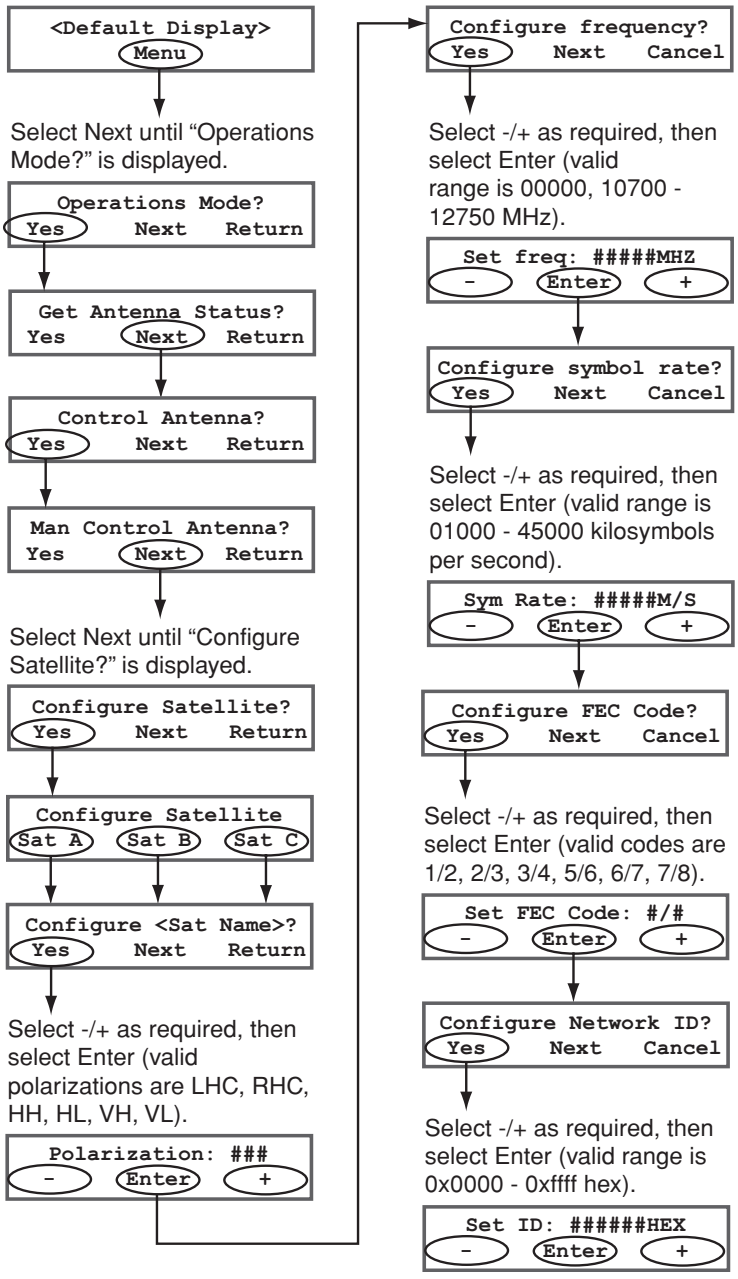
Configuring Satellite Settings

Use the flowchart in ***Figure A-3*** to configure one of the satellites selected for tracking.

TIP: *Linear satellites use the following polarization/band combinations: vertical high, vertical low, horizontal high, and horizontal low. Circular satellites use the following polarization/band combinations: right and left.*

TIP: *You can find satellite information on the web at* ***www.lyngsat.com*** *or* ***www.satcodx.com*** *(neither website is affiliated with KVH).*

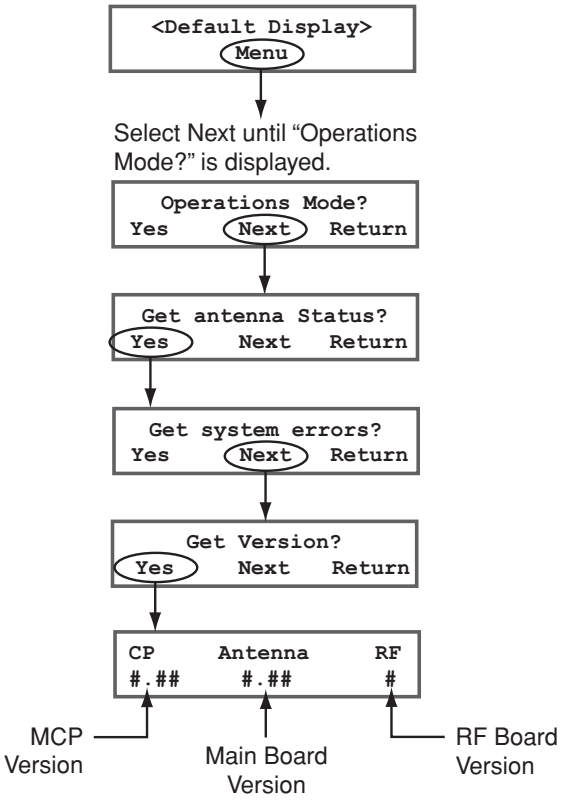
Figure A-3 Configuring Satellite Settings



Displaying Software Version Information

Use the flowchart in *Figure A-4* if you wish to display software version information.

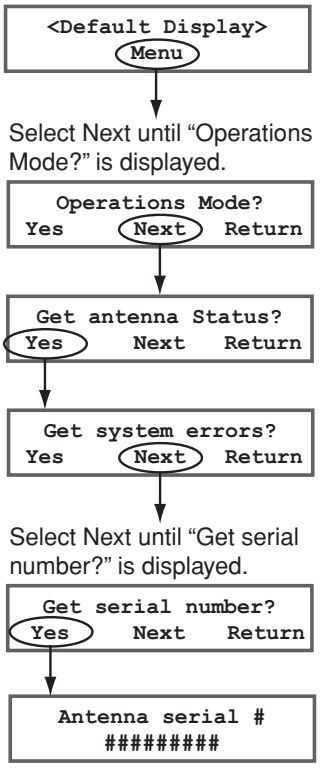
Figure A-4 Displaying Software Version Information



Displaying the Antenna Serial Number

Use the flowchart in *Figure A-5* if you wish to display the antenna serial number.

Figure A-5 Displaying Antenna Serial Number



Other Advanced Settings

Not all MCP menu options are used in this configuration. The following menu options are not used:

- Get System Errors
- Get Bit Error Rate
- Get Thres/Sig level
- Get State
- Upgrade Software

Appendix B
Position Grids

This appendix contains European and North American position grids for determining your approximate latitude and longitude.

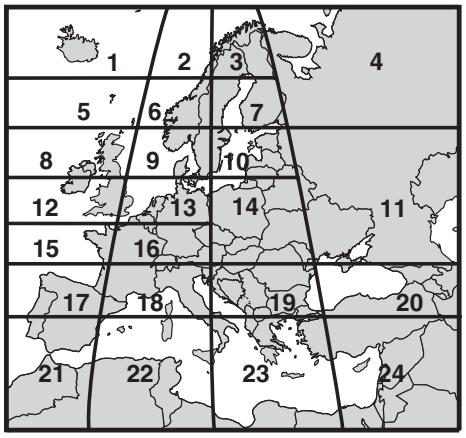
Contents

B

European Position Grid

If you wish to determine your approximate latitude and longitude, use the position grid and table in *Figure B-1*.

Figure B-1 Approximate Latitude and Longitude

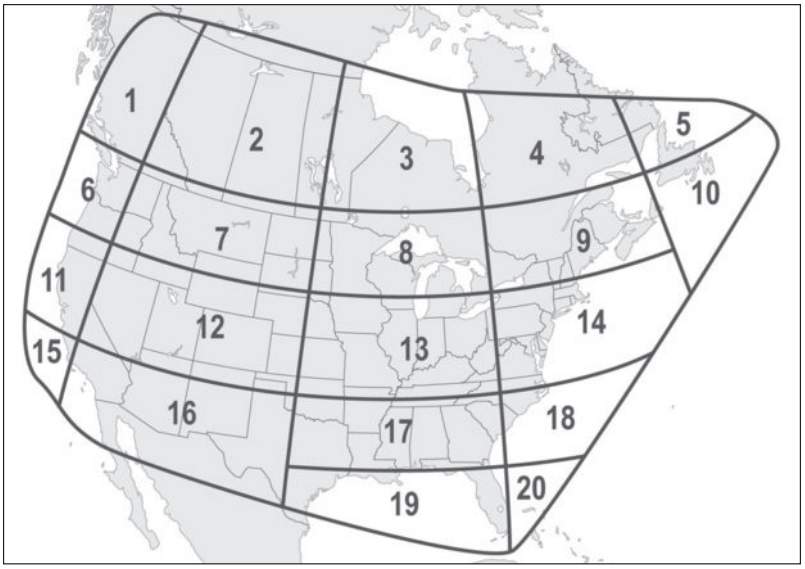


Grid #	Latitude	Longitude
1	67° N	7° W
2	67° N	7° E
3	67° N	22° E
4	65° N	45° E
5	63° N	7° W
6	63° N	7° E
7	63° N	22° E
8	57° N	7° W
9	57° N	7° E
10	57° N	22° E
11	55° N	40° E
12	53° N	7° W
13	53° N	7° E
14	50° N	22° E
15	47° N	7° W
16	47° N	7° E
17	43° N	7° W
18	43° N	7° E
19	43° N	22° E
20	43° N	37° E
21	36° N	7° W
22	36° N	7° E
23	36° N	22° E
24	36° N	37° E

North American Position Grid

If you wish to determine your approximate latitude and longitude, use the position grid and table in *Figure B-2*.

Figure B-2 Approximate Latitude and Longitude



Grid #	Latitude	Longitude
1	55° N	125° W
2	55° N	110° W
3	55° N	90° W
4	55° N	70° W
5	55° N	55° W
6	45° N	125° W
7	45° N	110° W
8	45° N	90° W
9	45° N	70° W
10	45° N	50° W
11	40° N	125° W
12	40° N	110° W
13	40° N	90° W
14	40° N	70° W
15	32° N	125° W
16	32° N	110° W
17	32° N	90° W
18	32° N	75° W
19	27° N	83° W
20	27° N	78° W

Appendix C Programming User-defined Satellites

This appendix explains how to program a user-defined satellite(s) into the antenna, if necessary. The TracVision M5/M7 includes a library of common satellites that you can choose from. However, if the satellite(s) you wish to track is not listed, follow the instructions in this appendix to program your desired satellite(s). For a complete listing of satellites in the library, see *"Settings" on page 23*.

Contents

C

Connect a PC to the Main Flash Port

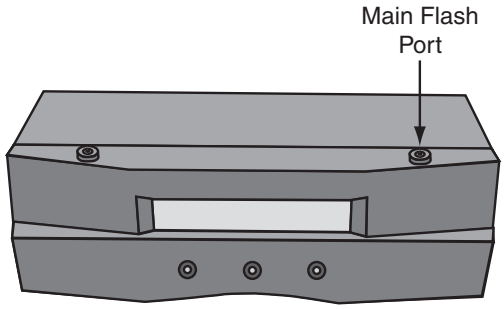
To program your user-defined satellite(s), you first need to connect a PC with Windows HyperTerminal installed.

TIP: *If you are a KVH-authorized technician, you can use the KVH Flash Update Wizard instead of HyperTerminal. Enter commands in the wizard's "Antenna Comms" window. You do not need to flash the antenna to enter commands.*

1. Turn Off the TracVision system.

2. Connect one end of the supplied flash adapter cable to the main flash port on the MCP. Connect the other end of the data cable to the serial port on your PC.

Figure C-1 Main Flash Port on MCP

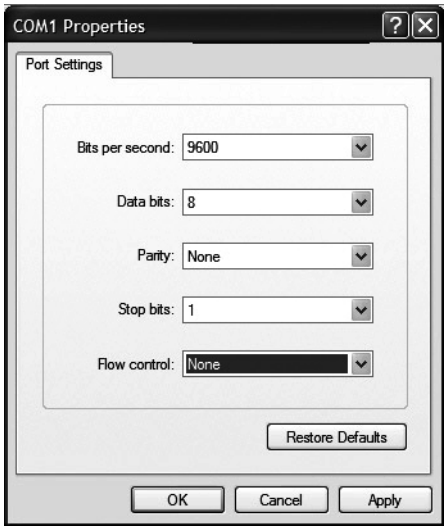


TIP: *If your computer does not have a DB9 serial COM port, you can use the following USB-to-RS232 adapters: IO Gear Part # GUC232A (visit* ***www.iogear.com****) or Belkin Part # F5U109 (visit* ***www.belkin.com****).*

3. Open HyperTerminal and establish the following settings:

   - Bits per second: 9600
   - Data bits: 8
   - Parity: None
   - Stop Bits:1
   - Flow Control: None

Figure C-2 HyperTerminal Settings



TIP: *To view characters on the screen as you type, set up HyperTerminal to echo typed characters. Select "Properties" from the File menu; select "ASCII Setup" at the Settings tab; then select "Echo typed characters locally" at the ASCII Setup window.*

4. Turn on the TracVision system.

Programming Your User-defined Satellite(s)

To configure a user-defined satellite, you will need to program the following satellite information into the antenna:

- Satellite name
- Satellite longitudinal position
- Transponder information for all applicable combinations of polarization/band:
  - Frequency
  - Symbol rate
  - FEC code
  - Network ID
  - Decoder type

TIP: *Linear satellites use the following polarization/band combinations: vertical high, vertical low, horizontal high, and horizontal low. Circular satellites use the following polarization/band combinations: right and left.*

NOTE: *You can find satellite information on the web at* ***www.lyngsat.com*** *or* ***www.satcodx.com*** *(neither website is affiliated with KVH).*

1. Connect a PC to the maintenance port, as described in *"Connect a PC to the Main Flash Port" on page 79*. Then type the following commands in the HyperTerminal window.

2. Type **HALT** then press Enter.

3. Type the following **SATCONFIG** command then press Enter:

SATCONFIG,*X*,*A*,*B*,*C*,*D*

Field	Description
X	User-defined satellite stored in antenna library (User1 = User-defined Satellite 1 or User2 = User-defined Satellite 2)
A	Longitude (0-180)
B	E (East) or W (West)
C	Decoding type (2 = DSS, 3 = DVB)
D	Polarization (L = linear) (C = circular)

4. Type **@DEBUGON** then press Enter.

5. Type the following **@SATCONFIG** command then press Enter:

@SATCONFIG,*X*,*E*,*F*,*G*,*H*,*I*,*J*,*K*

Field	Description
X	User-defined satellite stored in antenna library (User1 = User-defined Satellite 1 or User2 = User-defined Satellite 2)
E	Frequency, MHz (00000 or 10700-12750)
F	Symbol rate, kilosymbols per second (10000-45000)
G	FEC code (12, 23, 34, 56, 67, or 78)
H	Network ID, hexadecimal (0x####)
I	Polarization (V = vertical; H = horizontal; R = right; L = left)
J	LNB down conversion frequency (U = USA [LO=11250 MHz]; L = low [LO=9750 MHz]; H = high [LO=10600 MHz]; G = Latin America [LO=10500 MHz]; S = Sinosat [LO=11300 MHz])
K	Decoding type (2 = DSS, 3 = DVB)

6a. (Linear systems only) - Repeat Step 5 for each polarization/band:

- Vertical High
- Horizontal High
- Vertical Low
- Horizontal Low

6b. (Circular systems only) - Repeat Step 5 for each polarization/band:

- Right
- Left

If your selected satellite does not have information for one or more of these transponder categories, you can enter the following defaults instead:

Transponder Data	Default Value
Frequency	00000
Symbol rate	27500
FEC code	Same value as other transponders with valid data
Network ID	0x0000

7. Type **ZAP** then press Enter. The antenna restarts. Wait one minute for system startup.

8. Follow the steps in *"Setting the MCP to Track Different Satellites"* to select your new user-defined satellite(s) for tracking. Be sure use the following installation names for your user-defined satellite(s):

Satellite	Installation Name
User-defined Satellite 1	USER1
User-defined Satellite 2	USER2

Example - Linear Satellite

The following is an example of programming the fictional "YOURSAT 7" as the USER1 user-defined satellite.

YOURSAT 7 at 7°W, DVB decoder, linear polarization

Transponder Data	Value
Horizontal High	
Frequency	11.966 GHz
Symbol rate	27500
FEC code	3/4
Network ID	2048 (dec) = 0x0800
Vertical High	
Frequency	11.823 GHz
Symbol rate	27500
FEC code	3/4
Network ID	2048 (dec) = 0x0800
Vertical Low	
No data listed	
Horizontal Low	
No data listed	

Based on the above information, you would enter the following commands into the HyperTerminal window:

```
HALT
SATCONFIG,USER1,7,W,3,L
@DEBUGON
@SATCONFIG,A,11966,27500,34,0x0800,H,H,3
@SATCONFIG,A,11823,27500,34,0x0800,V,H,3
@SATCONFIG,A,00000,27500,34,0x0000,V,L,3
@SATCONFIG,A,00000,27500,34,0x0000,H,L,3
ZAP
```

Example - Circular Satellite

The following is an example of programming the fictional "YOURSAT 122" as the USER2 user-defined satellite.

YOURSAT 122 at 122°W, DVB decoder, circular polarization

Transponder Data	Value
Right	
Frequency	12.225 GHz
Symbol rate	20000
FEC code	5/6
Network ID	4100 (dec) = 0x1004
Left	
Frequency	12.456 GHz
Symbol rate	20000
FEC code	5/6
Network ID	4100 (dec) = 0x1004

Based on the above information, you would enter the following commands into the HyperTerminal window:

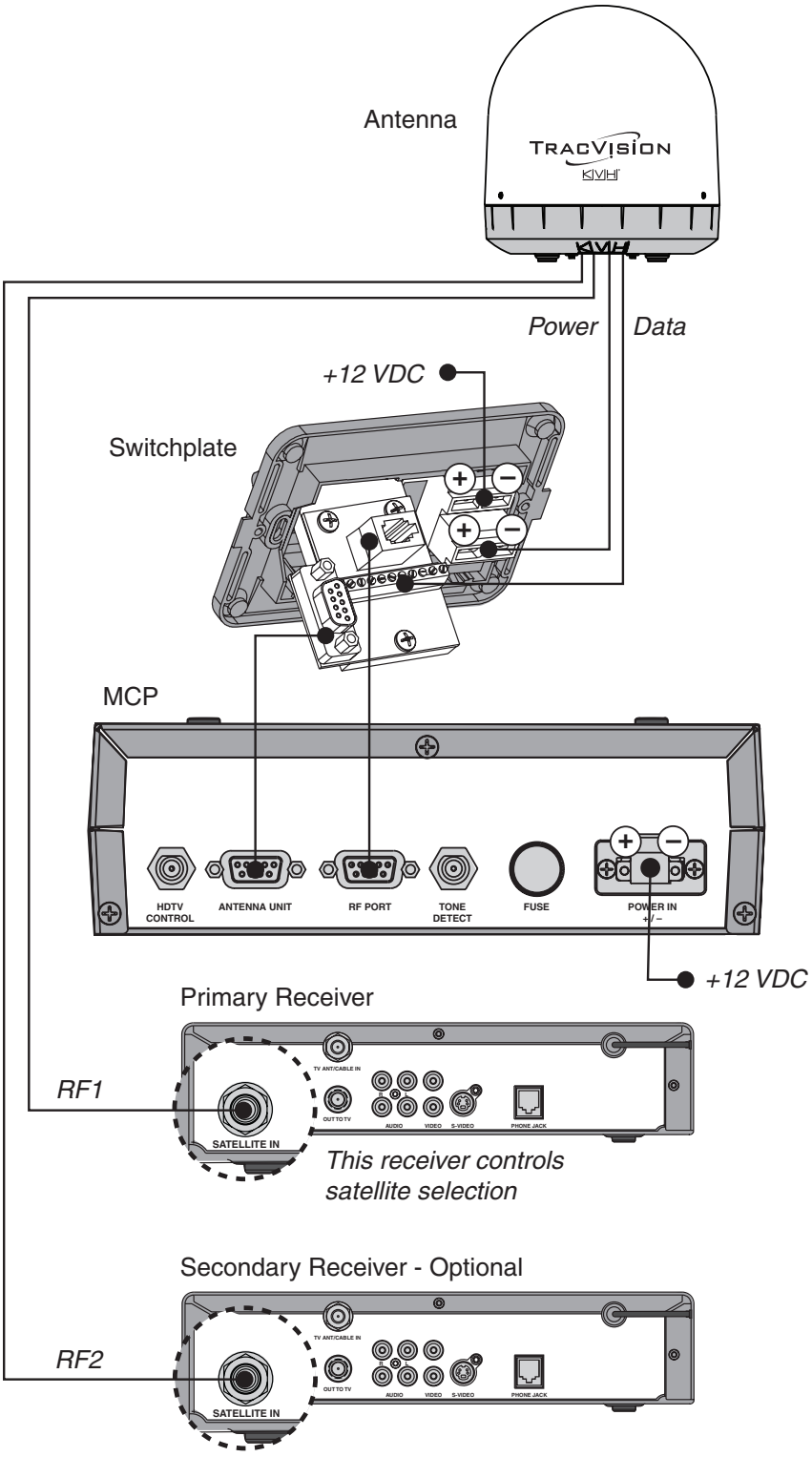
```
HALT
SATCONFIG,USER2,122,W,3,C
@DEBUGON
@SATCONFIG,B,99,12225,20000,56,0x1004,R,U,3
@SATCONFIG,B,99,12456,20000,56,0x1004,L,U,3
ZAP
```

Appendix D TracVision M5 Wiring Diagrams

This appendix provides receiver wiring diagrams for TracVision M5 configurations. Wiring diagrams vary according to the number and type of receivers installed and the TracVision system configuration (circular or linear). For installation instructions, refer to the *TracVision M5/M7 Installation Guide*.

Contents

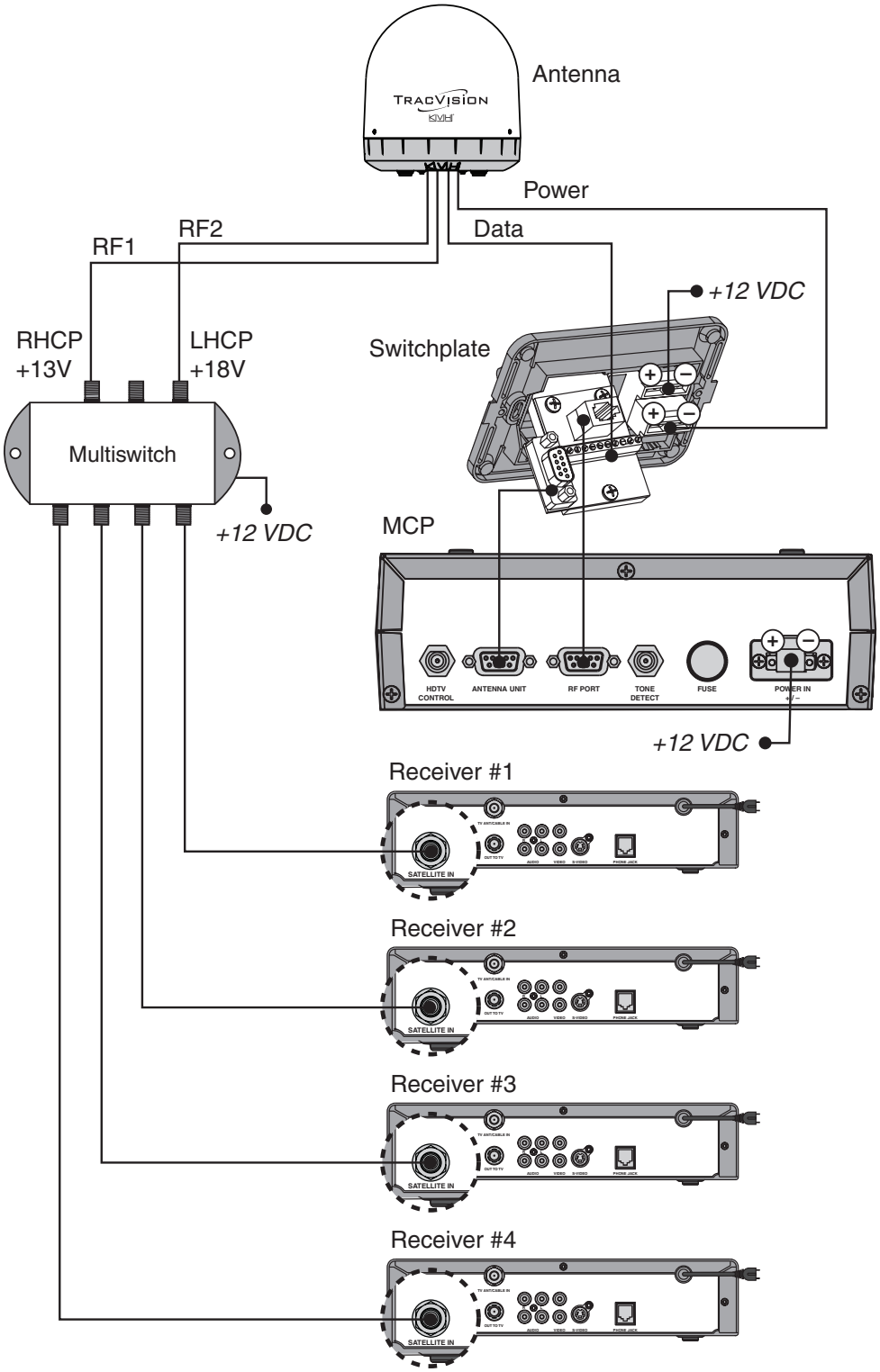
TracVision M5 Wiring Diagram for One or Two Receivers*



***NOTE:** Does not apply to DIRECTV HD receivers*

Circular Version Only

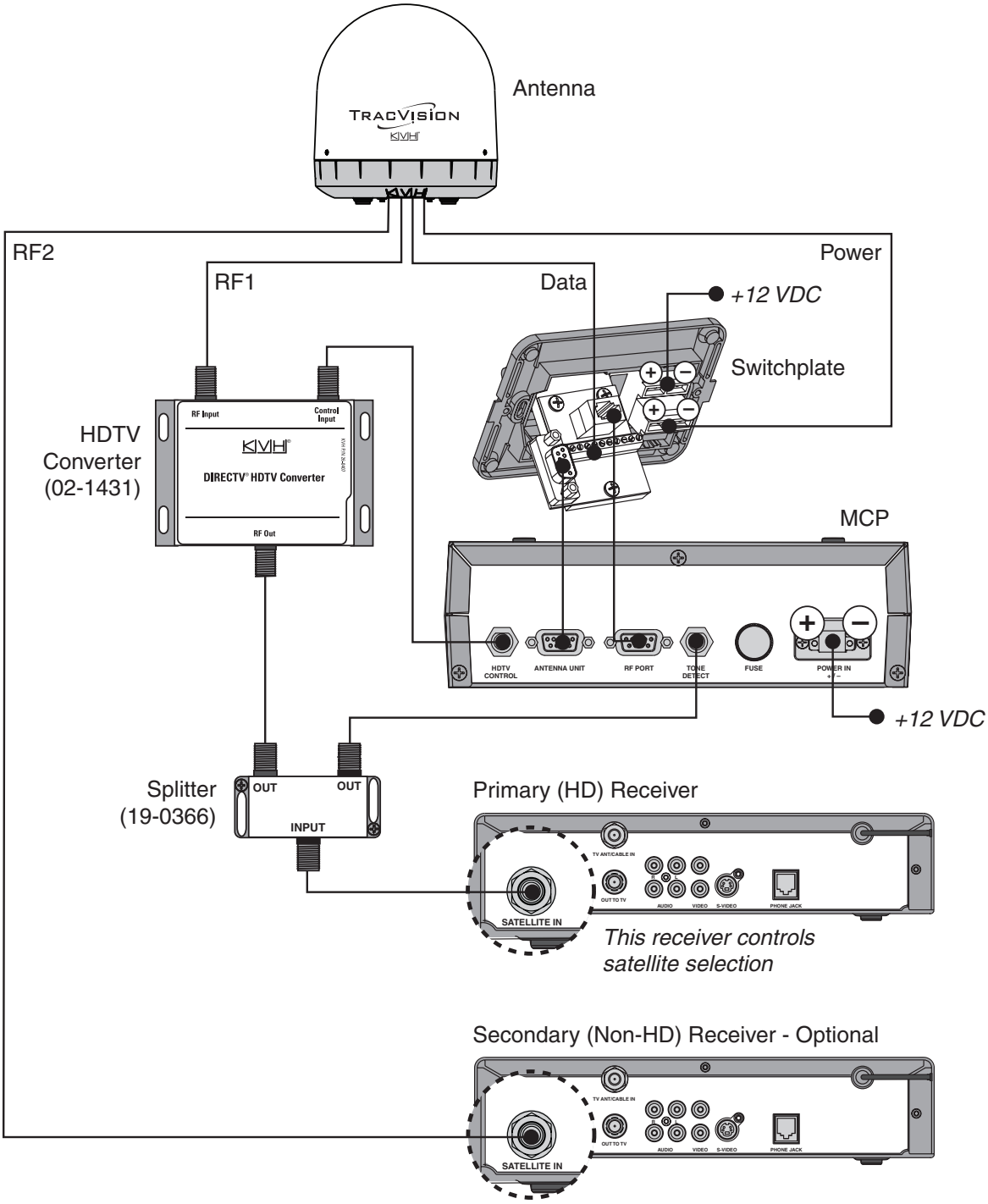
TracVision M5 Wiring Diagram for Three or Four Receivers* (Circular Version Only)



**NOTE:* *Does not apply to DIRECTV HD receivers. This configuration requires an active (powered) multiswitch, such as Channel Master model 6314IFD. You can purchase this multiswitch from KVH (KVH P/N 19-0123). Be sure to terminate all unused output connectors with 75 ohm DC blocks (Channel Master model #7184 or equivalent).*

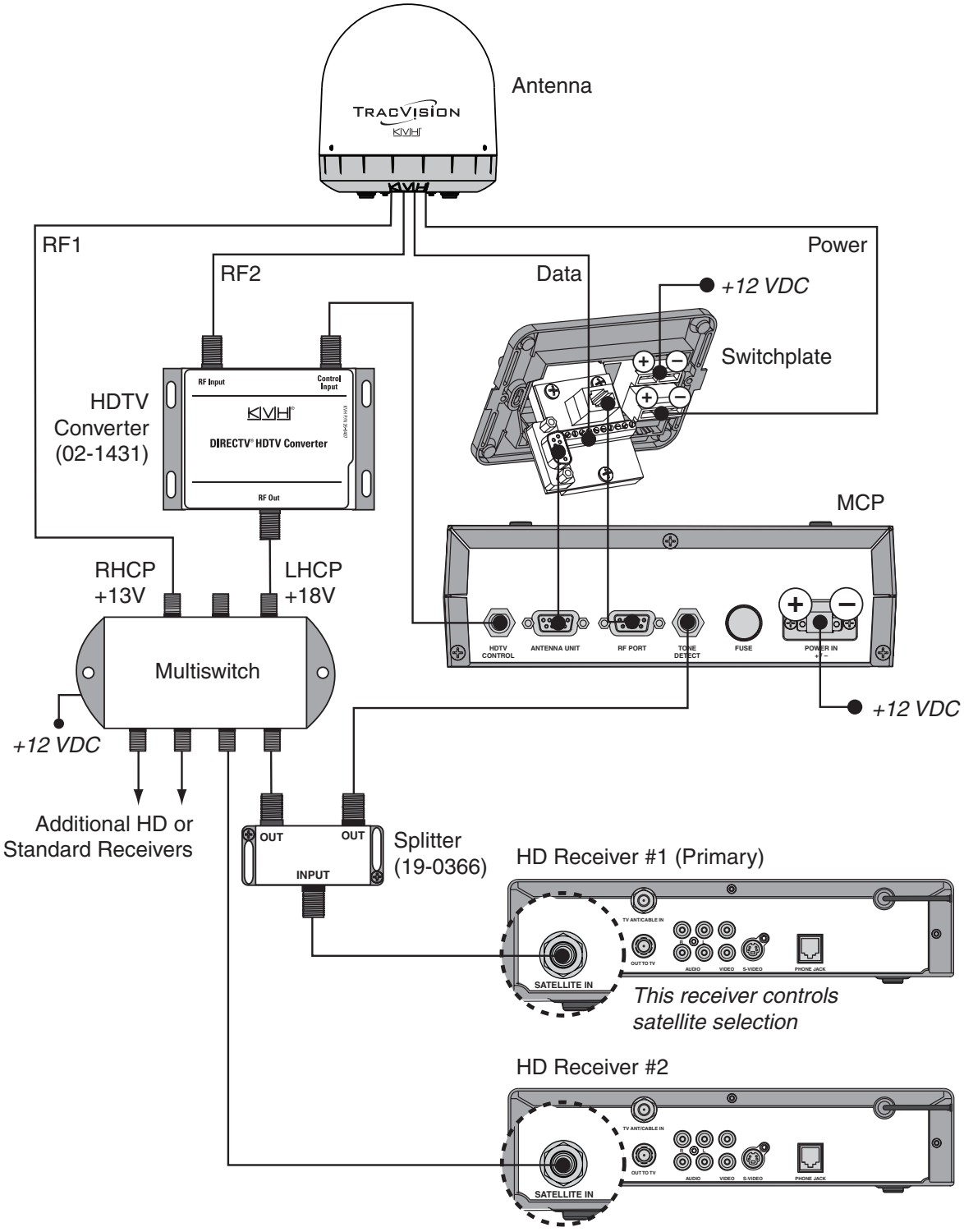
Circular Version Only

TracVision M5 Wiring Diagram for One DIRECTV HD Receiver* (Circular Version Only)



Circular Version Only

TracVision M5 Wiring Diagram for Two or More DIRECTV HD Receivers* (Circular Version Only)



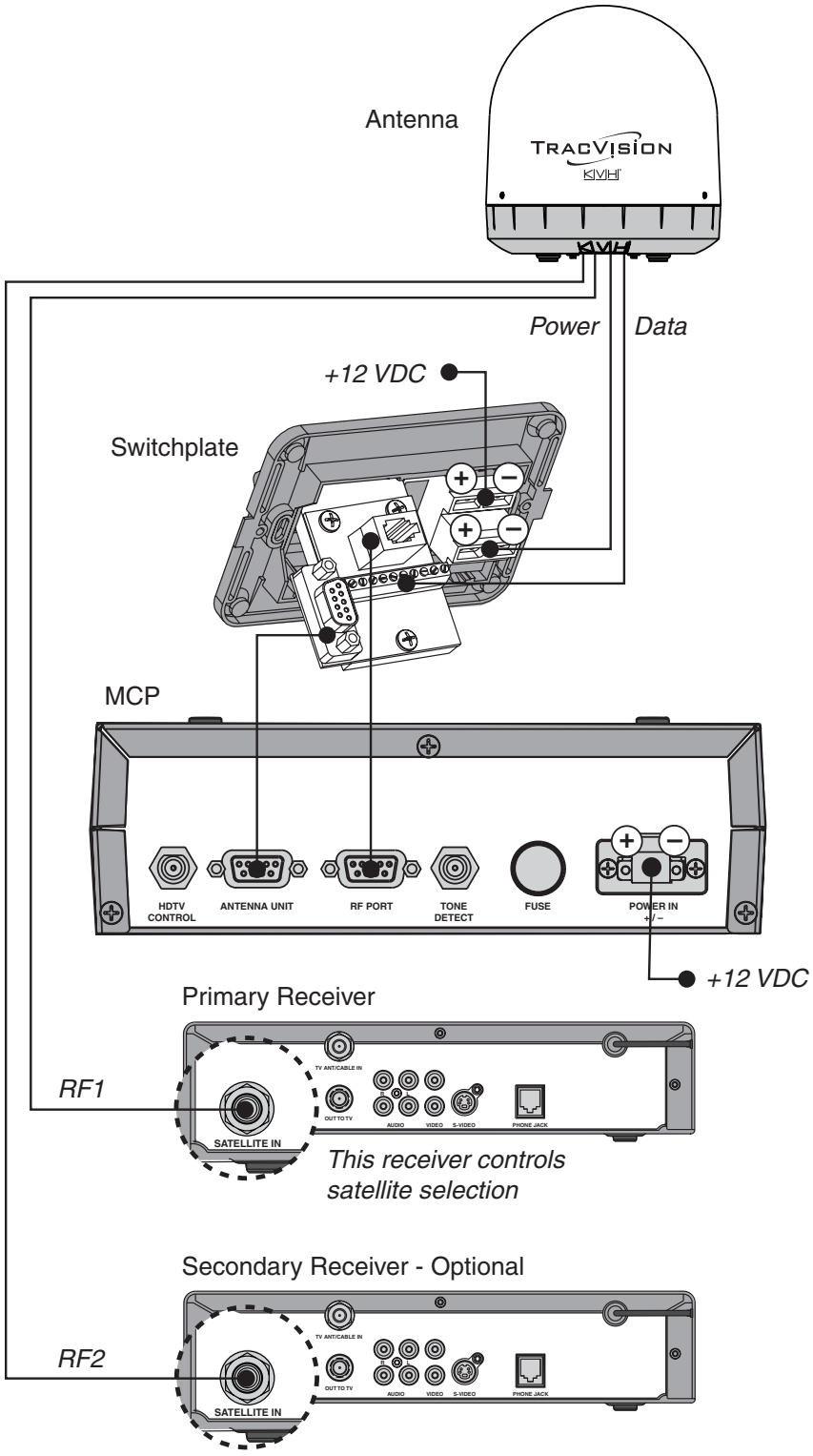
***NOTE:** This configuration requires an active (powered) multiswitch, such as Channel Master model 6314IFD. You can purchase this multiswitch from KVH (KVH P/N 19-0123). Be sure to terminate all unused output connectors with 75 ohm DC blocks (Channel Master model #7184 or equivalent). Automatic TriSat Mode is unavailable with this configuration.*

Appendix E TracVision M7 Wiring Diagrams

This appendix provides receiver wiring diagrams for TracVision M7 configurations. Wiring diagrams vary according to the number and type of receivers installed and the TracVision system configuration (circular/linear and dual/quad-output). For installation instructions, refer to the *TracVision M5/M7 Installation Guide*.

Contents

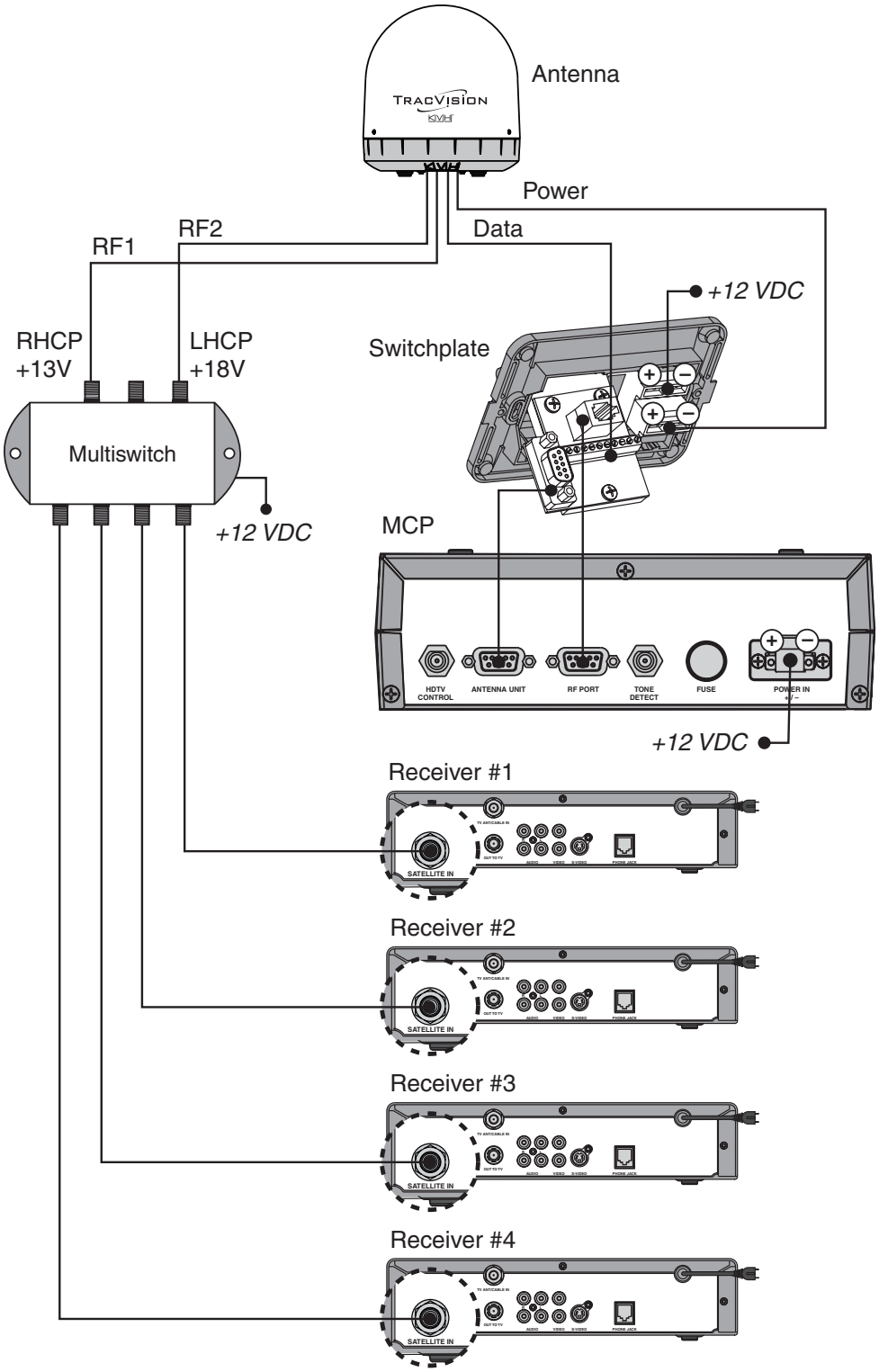
TracVision M7 Wiring Diagram for One or Two Receivers*



***NOTE:** Does not apply to DIRECTV HD receivers.*

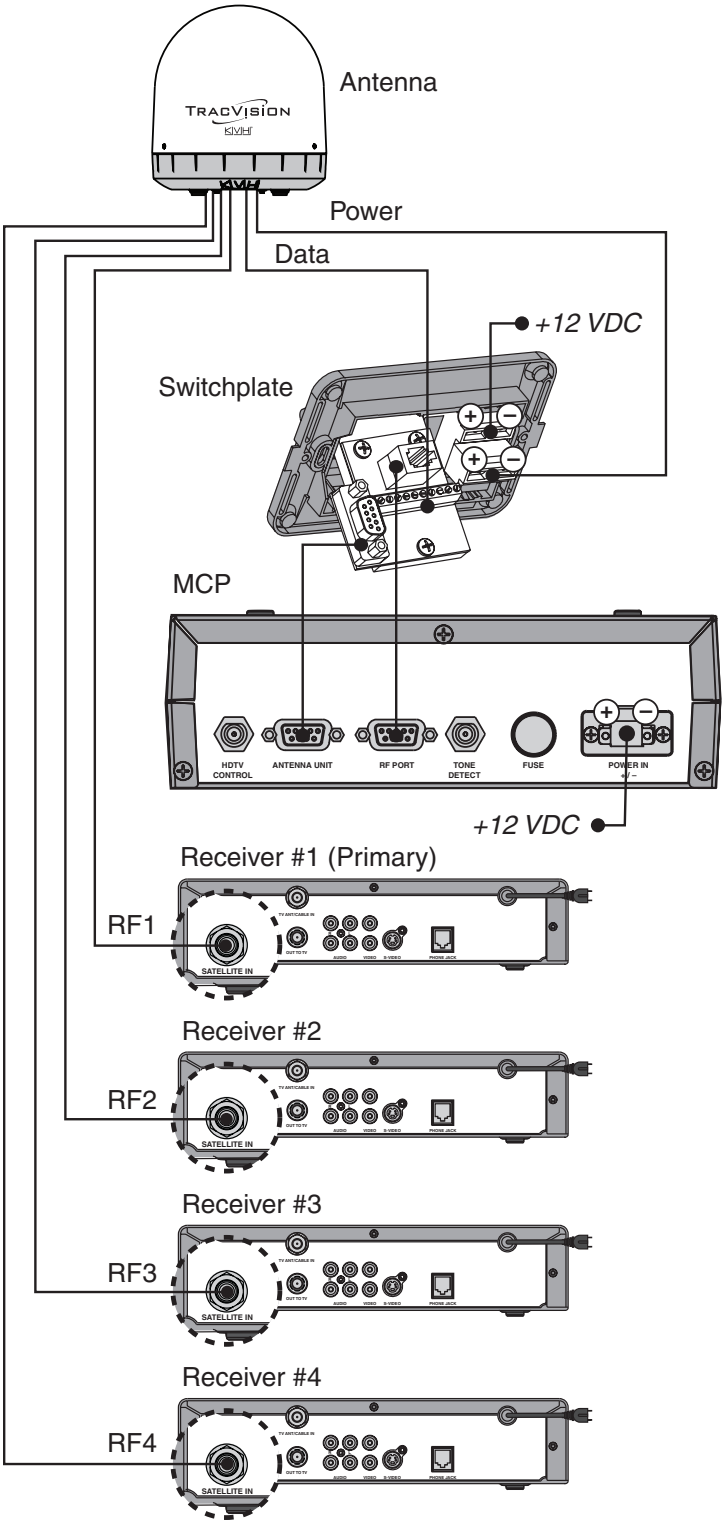
Circular Version Only

TracVision M7 Wiring Diagram for Three or Four Receivers* (Circular Version Only)



**NOTE:* *Does not apply to DIRECTV HD receivers. This configuration requires an active (powered) multiswitch, such as Channel Master model 6314IFD. You can purchase this multiswitch from KVH (KVH P/N 19-0123). Be sure to terminate all unused output connectors with 75 ohm DC blocks (Channel Master model #7184 or equivalent).*

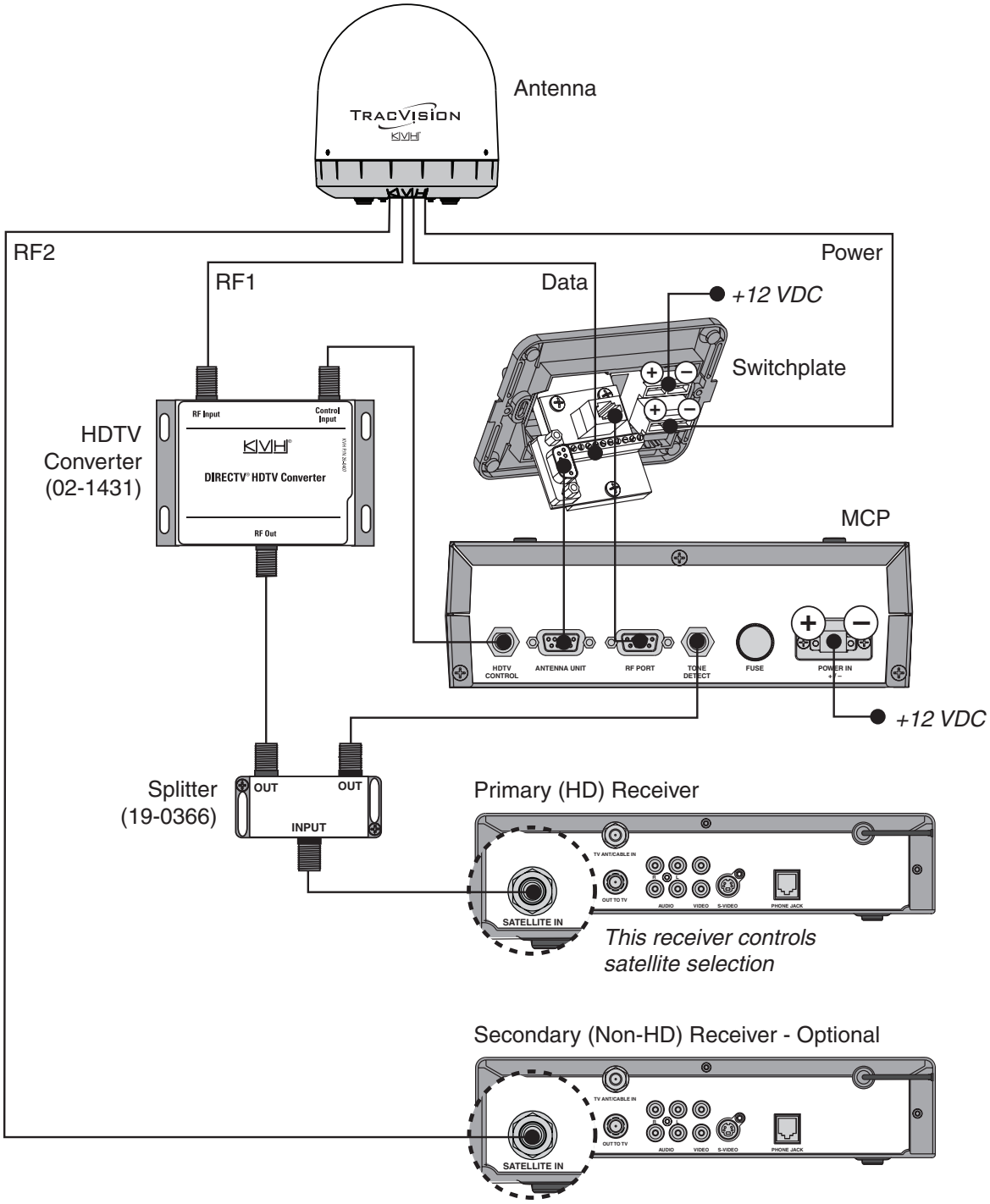
TracVision M7 Wiring Diagram for Three or Four Receivers* (Linear Quad-output Version Only)



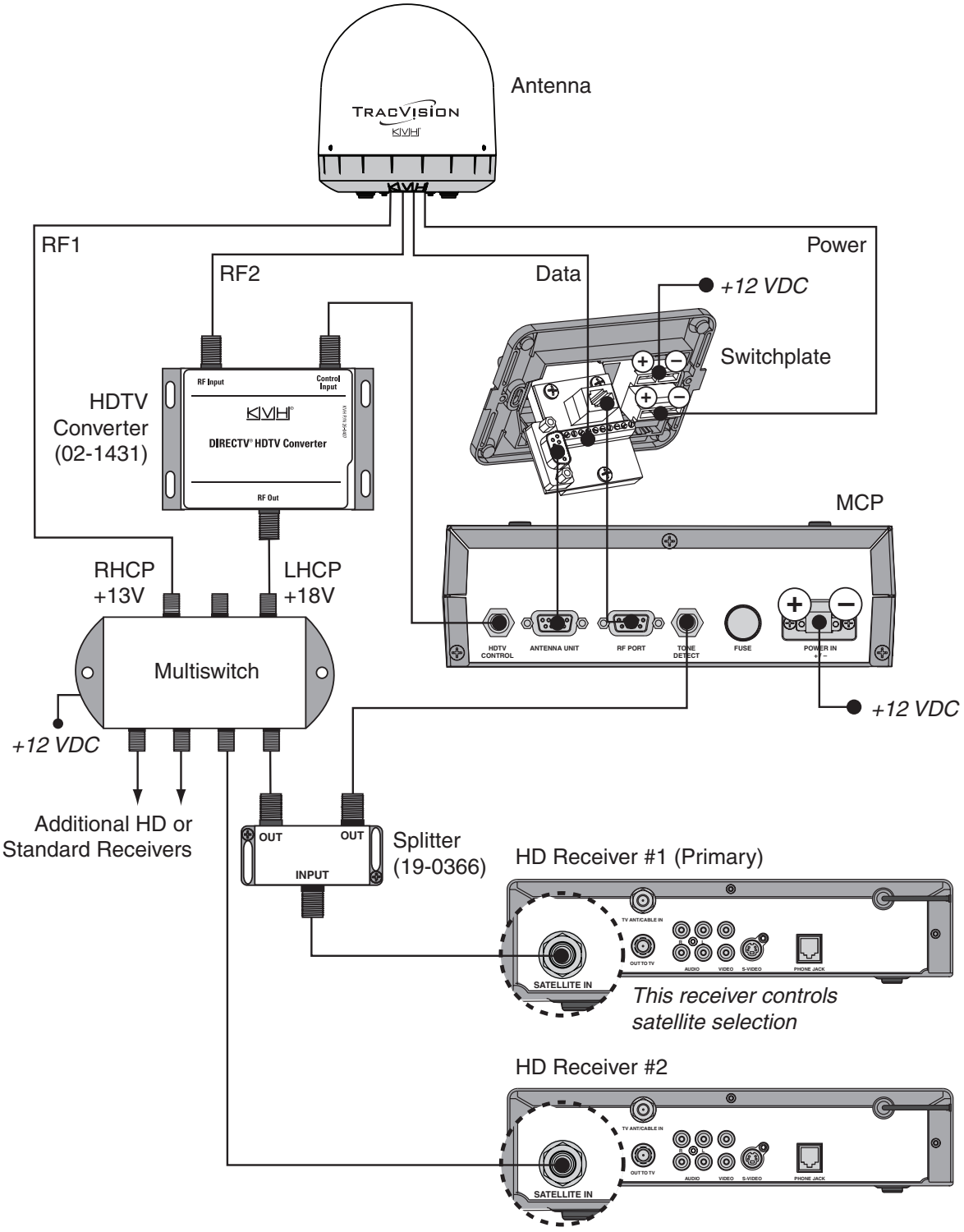
NOTE: *If you wish to connect more than four receivers, you will need to install an active (powered) multiswitch, such as Spaun model 5602NF. You can purchase this multiswitch from KVH (KVH P/N 19-0413). Be sure to terminate all unused output connectors with 75 ohm DC blocks (Channel Master model #7184 or equivalent).*

Circular Version Only

TracVision M7 Wiring Diagram for One DIRECTV HD Receiver (Circular Version Only)



TracVision M7 Wiring Diagram for Two or More DIRECTV HD Receivers* (Circular Version Only)



**NOTE:* *Does not apply to DIRECTV HD receivers. This configuration requires an active (powered) multiswitch, such as Channel Master model 6314IFD. You can purchase this multiswitch from KVH (KVH P/N 19-0123). Be sure to terminate all unused output connectors with 75 ohm DC blocks (Channel Master model #7184 or equivalent). Automatic TriSat Mode is unavailable with this configuration.*

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