TRACVISION®
BY KVH INDUSTRIES

TracVision M7
Switchplate Configuration

M-7
TracVision
KVH

TracVision M7 Installation Guide

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Switchplate Configuration

These instructions explain how to install the TracVision M7 satellite TV antenna system on a vessel. Complete instructions on how to use the system are provided in the *User's Guide*.

Installation Steps

1. Inspect Parts and Get Tools, 3
2. Plan the Antenna Installation, 4
3. Plan the Switchplate Installation, 5
4. Prepare the Antenna Site, 6
5. Remove the Restraint, 7
6. Wire the Antenna, 8
7. Mount the Antenna, 9
8. Wire the Switchplate, 10

9. Wire the Receiver(s), 11
10. Connect Power, 12
11. Mount the Switchplate, 13
12. Enter Your Latitude & Longitude, 14
13. Select Satellites, 16
14. Set the LNB Skew Angle (Linear only), 17
15. Educate the Customer, 18

Who Should Install the System?

To ensure a safe and effective installation, KVH recommends that a KVH-authorized marine technician install the TracVision antenna. KVH-authorized technicians have the tools and electronics expertise necessary to install the system. To find a technician near you, visit *www.kvh.com/wheretogetservice*.

Linear vs. Circular Systems

The installation process differs slightly depending on the type of LNB (low noise block) that is installed in the antenna (linear or circular). These differences are noted throughout this manual. Appendix B on page 23 notes the type of LNB required for each region and satellite.

Technical Support

If you need technical assistance, please contact KVH Technical Support:

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

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

➊ Inspect Parts and Get Tools

Before you begin, follow these steps to make sure you have everything you need to complete the installation.

a. Unpack the box and ensure it contains everything shown on the *Kitpack Contents List*. Save the packaging for future use.

> **IMPORTANT!**
>
> Always lift the antenna by the baseplate and never by the radome or any portion of the internal antenna assembly (see Figure 1).

b. Carefully examine all of the supplied parts to ensure nothing was damaged in shipment.

c. Gather all of the tools and materials listed below. You will need these items to complete the installation.

- Flat-head and Phillips-head screwdrivers

- Electric drill and 1/2" (13 mm), 5/32" (4 mm), and 3/32" (2.25 mm) drill bits

- 3" (80 mm) hole saw

- Socket wrenches

- 7/16" open-end wrench

- Light hammer and center punch

- Adhesive tape and scriber or pencil

- Wire strippers and terminal lug crimper

- RG-6 or RG-11 RF coax cable(s) with Snap-N-Seal® F-connectors (see Figure 2); see Step 6a on page 8 to determine the number of cables required

- Connector installation tool (Augat IT1000 - KVH part #19-0242)

- Power cable (see Figure 3)

- Satellite TV receiver and TV

- Windows® laptop PC with Windows HyperTerminal or KVH Flash Update Wizard installed

Figure 1: TracVision M7 System Components

Antenna
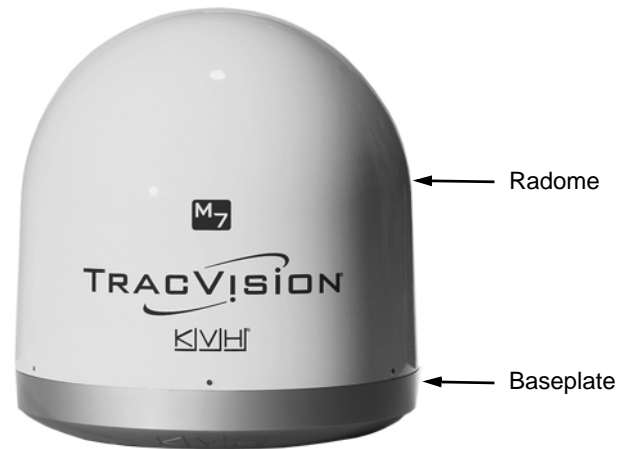
Switchplate

Figure 2: RF Cable Guidelines

Cable Length	Use Cable Type
<= 75 ft (23 m)	RG-6
> 75 ft (23 m)	RG-11

Figure 3: Power Cable Guidelines

Cable Length	Use Cable Gauge
< 40 ft (12 m)	14AWG (2.5mm^2)
40-70 ft (12-21 m)	12AWG (4mm^2)

❷ Plan the Antenna Installation

Before you begin, consider the following antenna installation guidelines:

- Minimize blockage. The antenna requires a clear view of the sky to receive satellite TV (see Figure 4). The fewer obstructions, the better the system will perform.

- Make sure the mounting surface is wide enough to accommodate the antenna's base (see Figure 5). Also make sure it is flat, level, strong enough to support the antenna's weight (55 lbs, 25 kg), and rigid enough to withstand vibration.

- Select a location that is as close as possible to the intersection of the vessel's fore-and-aft centerline and midships.

- Do not mount the antenna at the same level as the radar because the radar's energy might overload the antenna. Ideally, you should mount the antenna 4 ft (1.2 m) above and 4 ft (1.2 m) away from the radar.
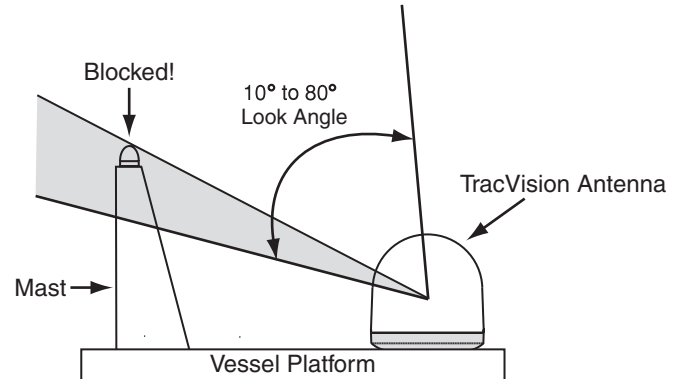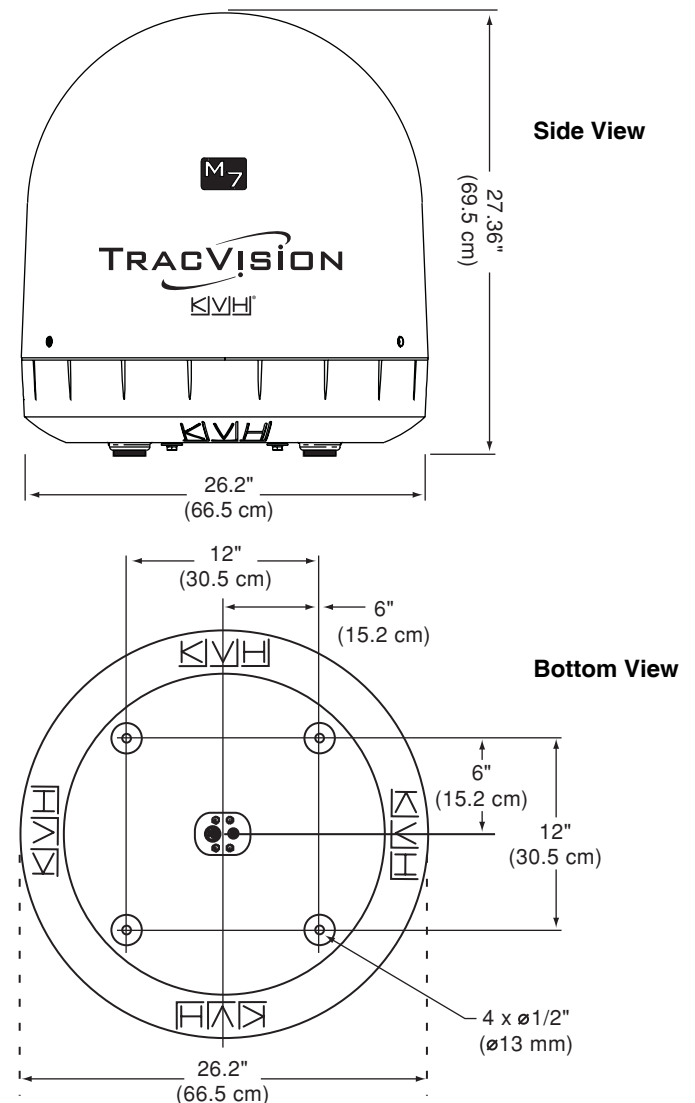
Figure 4: Blockage from Obstruction

Figure 5: Antenna Dimensions

Side View

27.36" (69.5 cm)

26.2" (66.5 cm)

Bottom View

12" (30.5 cm)

6" (15.2 cm)

6" (15.2 cm)

12" (30.5 cm)

4 x ø1/2" (ø13 mm)

26.2" (66.5 cm)

4

❸ Plan the Switchplate Installation

Before you begin, consider the following switchplate installation guidelines:

- Select a switchplate mounting location in a dry, well-ventilated area belowdecks away from any heat sources or salt spray.

- Be sure to leave enough room at the switchplate's rear panel for connecting the cables (see Figure 6 for switchplate dimensions).

- Since the supplied data cable is 50 ft (15 m) long, the switchplate must be located within 50 ft (15 m) of the antenna.

Prepare the Switchplate Mounting Site

Once you have identified a suitable switchplate mounting site, follow these steps to prepare the site for installation.

a. Using the switchplate mounting template provided at the end of this manual, mark and cut out a hole in the mounting surface to accommodate the switchplate (see Figure 7).

b. Using the same template, mark the locations for the four switchplate mounting holes.

c. Drill a 3/32" (2.25 mm) hole at the four mounting hole locations. Later, you will mount the switchplate using four #6 screws.
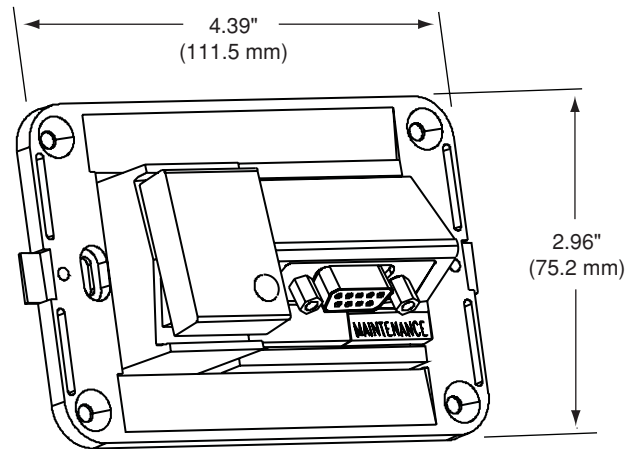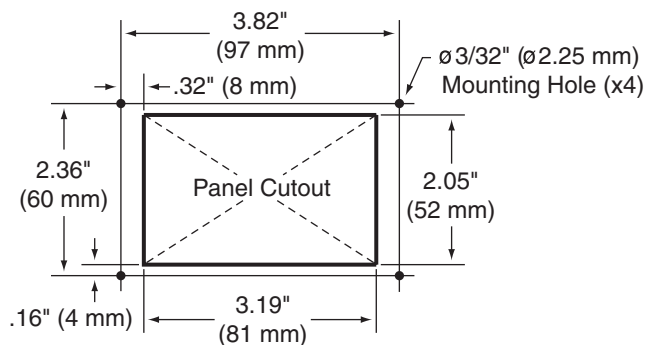
Figure 6: Switchplate Dimensions

Figure 7: Switchplate Mounting Holes Layout

④ Prepare the Antenna Site

Once you have identified a suitable antenna mounting site, according to the guidelines provided in Step 2, follow these steps to drill the mounting holes and cable access hole to prepare the site for installation.

a. Unfold the antenna mounting template (supplied in the Customer Welcome Kit) and place it onto the mounting surface. Make sure the "FWD" (forward) arrow points toward the bow and is parallel to the vessel's centerline (see Figure 8).

NOTE: You don't need to mount the antenna exactly on the vessel's centerline, but the antenna's forward arrow must be parallel to it.

b. Use the template to mark the locations for the four mounting holes and cable access hole on the mounting surface.

c. Drill a 1/2" (13 mm) hole at the four mounting hole locations you marked in Step 4b. Later, you will insert four 3/8"-16 bolts through these holes to secure the antenna to the mounting surface.

d. Cut out the 3" (80 mm) cable access hole in the location you marked in Step 4b. Smooth the edges of the hole to protect the cables. Later, you will route the data, power, and RF cables through this hole and into the vessel.

e. Clean and dry the antenna mounting surface.

f. Peel off the paper backing from the supplied foam seal to expose the adhesive. Then press the foam seal down firmly onto the mounting surface, ensuring the hole in the foam seal aligns with the cable access hole in the mounting surface (see Figure 9).

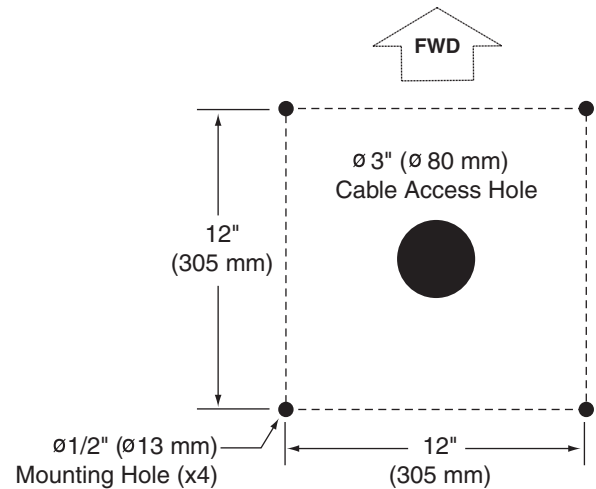Figure 8: Antenna Mounting Holes Layout

FWD

ø 3" (ø 80 mm) Cable Access Hole

12" (305 mm)

12" (305 mm)

ø1/2" (ø13 mm) Mounting Hole (x4)

Figure 9: Foam Seal

Align with Cable Access Hole

⑤ Remove the Restraint

Inside the antenna, a foam block prevents the antenna assembly from moving during shipment. Follow these steps to remove this shipping restraint.

a. Remove the six #10-32 Phillips screws securing the radome to the baseplate (see Figure 10). Carefully lift the radome straight up until clear of the antenna assembly and set it aside in a safe place.

   TIP: If you keep the radome topside, secure it with a lanyard to prevent it from falling overboard.

b. Remove the foam block that is wedged beneath the antenna's reflector (see Figure 11). Save this restraint for future use; the customer will need to reinstall it if he/she needs to relocate or reship the antenna.

> **IMPORTANT!**
>
> Once you have removed the restraint, handle the antenna very carefully. With the restraint removed, the internal antenna assembly rotates freely and, if not handled properly, can damage the limit switch.
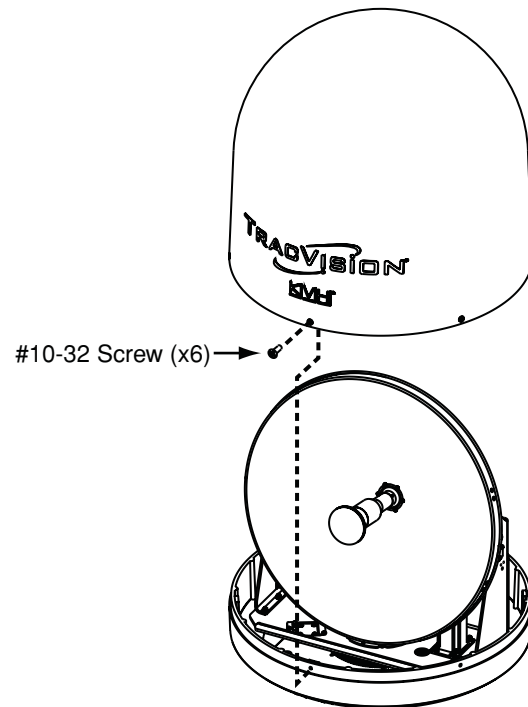
Figure 10: Removing the Radome

#10-32 Screw (x6) →

Figure 11: Foam Block Shipping Restraint

Shipping Restraint

7

6 Wire the Antenna

Follow these steps to connect the data, power, and RF cables to the antenna.

a. First determine the number of RF coax cables required for your particular installation (see Figure 12). (See Figure 13 to determine the type of cable required.)

b. Route the data, power, and RF cables belowdecks through the 3" (80 mm) cable access hole. Leave an adequate service loop, approximately 8" (20 cm) of slack, in the cables for easy serviceability. Later, you will connect the data and power cables to the switchplate and the RF cable(s) to the receiver(s).

c. Connect the data cable to the "Data" jack on the bottom of the antenna (see Figure 14). Hand-tighten until the connector locks in place; do not use excessive force.

d. Connect the power cable to the "Power" jack on the bottom of the antenna. Hand-tighten until the connector locks in place; do not use excessive force.

e. Connect the RF coax cable(s) to the antenna. If you need to connect just one RF cable, connect the cable to the "RF1" jack on the bottom of the antenna. Hand-tighten, then tighten with a 7/16" wrench for 1/4 turn to ensure an electrical and weather-proof connection. Connect any additional RF coax cables to the antenna's RF2, RF3, and RF4 jacks, in that order.

TIP: If you connect two or more RF cables, label both ends of each cable to match the connector. This will make it easier to identify the cables later.

Figure 12: Number of RF Coax Cables Required

Connecting to:	# RF Cables
System with Dual LNB	
1 receiver	1
2 or more receivers	2*
System with Quad LNB (Europe Only)	
1 receiver	1
2 receivers	2
3 receivers	3
4 or more receivers	4**

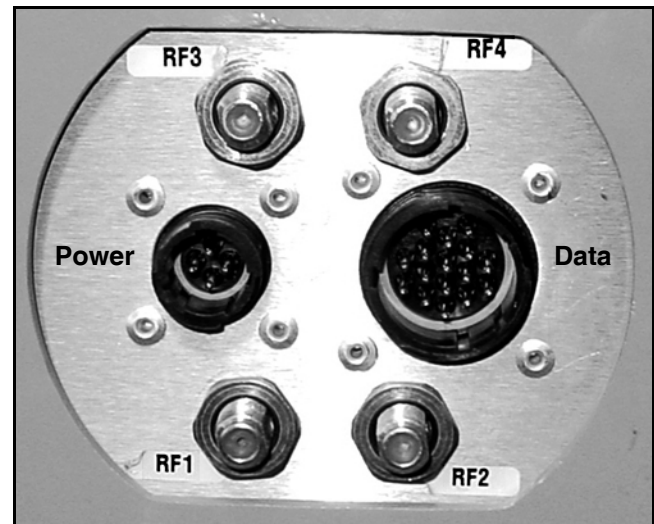* Multiswitch required for 3 or more receivers.
** Multiswitch required for 5 or more receivers.
See Appendix A on page 21 for details.

Figure 13: RF Cable Guidelines

Cable Length	Use Cable Type
<= 75 ft (23 m)	RG-6
> 75 ft (23 m)	RG-11

Figure 14: Connectors on Bottom of Antenna

7 Mount the Antenna

Follow these steps to mount the antenna to the mounting surface.

a. Place the antenna baseplate over the holes drilled in the mounting surface.

b. Make sure the forward arrow inside the baseplate points toward the bow and is parallel to the vessel's centerline (see Figure 15).

c. Make sure the four holes in the baseplate line up with the four holes in the mounting surface.

> **IMPORTANT!**
>
> You will need to rotate the antenna assembly by hand to see all four mounting holes. Rotate the antenna assembly slowly. If it hits a mechanical stop with excessive force, the limit switch might become damaged.

d. At each of the four baseplate mounting holes, place a 3/8" flat washer on a 3/8"-16 bolt and insert the bolt into the hole from above (see Figure 16).

e. Secure each mounting bolt to the mounting surface using a 3/8" shoulder washer, a 3/8" flat washer, and a 3/8"-16 lock nut from below. Tighten all four bolts until the four rubber feet are bottomed against the mounting surface and the foam seal is fully compressed.

TIP: If you are installing a linear system, you may wish to keep the radome off for now. Later, you will need to adjust the skew angle of the antenna's LNB.

f. Reinstall the radome onto the antenna. Secure in place with the six #10-32 screws you removed in Step 5a.

g. Install a protective plastic screw cap (supplied in the kitpack) over each radome screw.

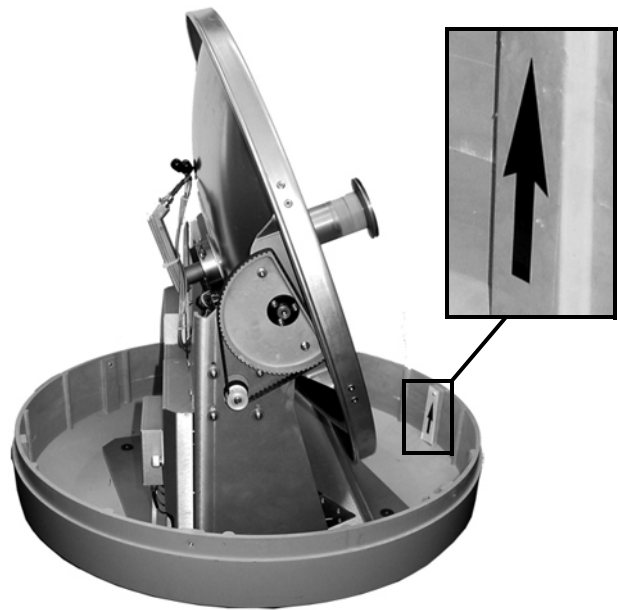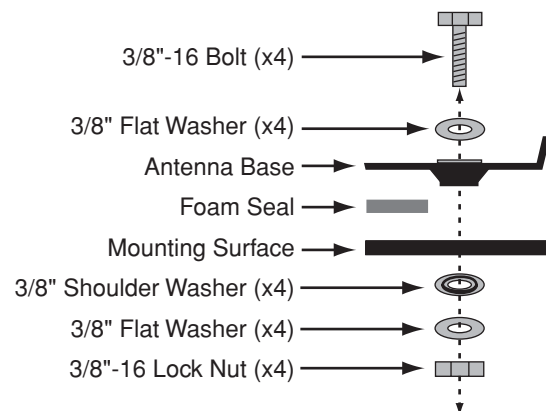**Figure 15: Forward Arrow in Antenna Baseplate**

Figure 16: Mounting the Antenna (Side View)

3/8"-16 Bolt (x4)
3/8" Flat Washer (x4)
Antenna Base
Foam Seal
Mounting Surface
3/8" Shoulder Washer (x4)
3/8" Flat Washer (x4)
3/8"-16 Lock Nut (x4)

9

8 Wire the Switchplate

Follow these steps to connect the switchplate to the antenna.

NOTE: System wiring diagrams are provided in Appendix D on page 27.

a. First dress the data and power cables from the antenna. Strip back the insulation of each wire approximately 1/4" (6 mm) and gently twist each wire to ensure a good electrical connection.

b. Connect the data cable from the antenna to the terminal board on the back of the switchplate (see Figure 17). Be sure to match the wire colors with the terminal board label. Tighten the terminal screws to secure all wires in place.

> **IMPORTANT!**
>
> The diagram refers to wires by **body color/ stripe color**. For example, "Blue/White" means the blue wire with the white stripe.

> **IMPORTANT!**
>
> Do not connect the data cable's drain wire (shield) to anything. You can simply snip it from the cable.

c. Connect the power cable from the antenna to the switchplate's power output terminals (see Figure 18).

Figure 17: Switchplate Wiring - Antenna Data Cable

Wire	Signal
BLU/WHT	Not Used
WHT/BLU	Not Used
BRN/WHT	PC GND
WHT/BRN	PC TXD
ORG/WHT	PC RXD
WHT/ORG	RF GND
GRY/WHT	RF RXD
WHT/GRY	RF TXD
GRN/WHT	Not Used
WHT/GRN	Not Used

Data Cable to Antenna
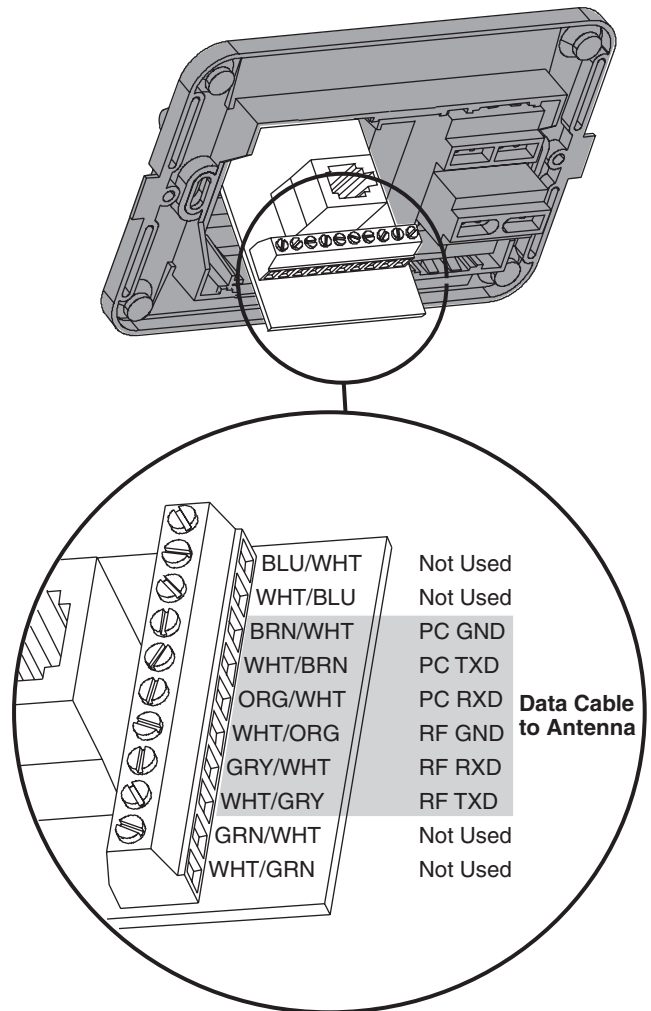
Figure 18: Switchplate Wiring - Antenna Power Cable

To Antenna — Ground (Black)
+12 VDC (Red)

10
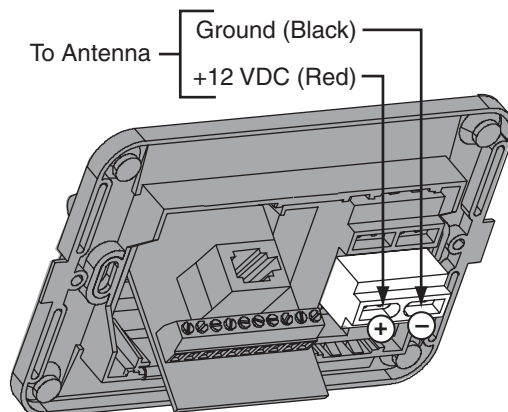
⑨ Wire the Receiver(s)

In Step 6, you routed the RF coax cable(s) from the antenna, through the cable access hole, and into the vessel. Follow these steps to connect the RF coax cable(s) to the customer's satellite TV receiver(s).

IMPORTANT!

If you wish to connect **three or more** receivers to the antenna, see Appendix A on page 21.

---

a. If you are connecting two receivers to the TracVision system, decide which receiver will be the primary receiver. The primary receiver controls satellite selection.

   NOTE: *The secondary receiver will only be able to select a channel carried on the satellite that is currently selected on the primary receiver.*

b. Connect the RF1 cable from the antenna to the "Satellite In" jack on the primary receiver (see Figure 19).

c. If you are connecting two receivers, connect the RF2 cable from the antenna to the "Satellite In" jack on the secondary receiver.

IMPORTANT!

Be sure all receivers are grounded. If the receiver has a 2-prong power plug, run a ground wire from the receiver's chassis to a suitable ground point. If a potential exists between AC and DC grounds, connect the wire to the switchplate's DC return instead.

---

d. Connect the receiver(s) to the customer's television(s). Follow the instructions in the receiver's manual.

Figure 19: Wiring the Receivers to the Antenna

11
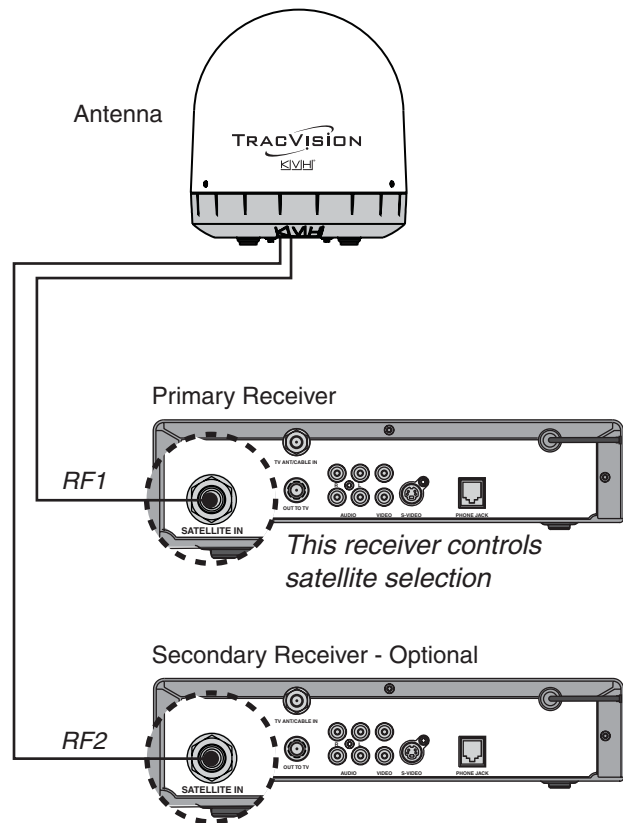
⑩ Connect Power

Follow these steps to connect power. The switchplate supplies power to the antenna.

a. Before you begin, disconnect vessel power.

<table>
<tr><td>⚠️</td><td>CAUTION</td></tr>
<tr><td colspan="2">For your own safety, disconnect vessel power and make sure the circuit is dead before you connect any power wires.</td></tr>
</table>

b. Connect a power cable to 12 VDC vessel power (for cable specifications, see Figure 3 on page 3).

IMPORTANT!

Power supplied to the antenna must not fall below 11 VDC or exceed 16 VDC.

c. Connect your vessel power wires to the power (+) and ground (-) input terminals on the switchplate (see Figure 20).

Figure 20: Switchplate Wiring - Vessel Power Cable
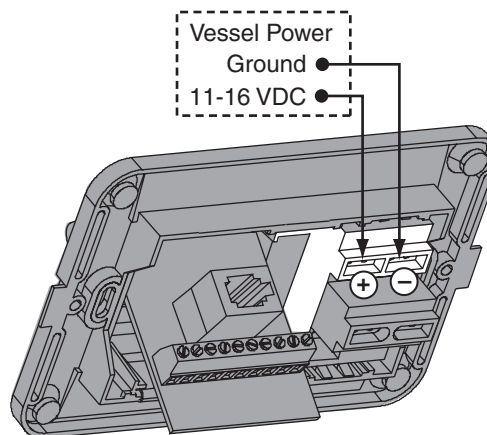
⓫ Mount the Switchplate

In Step 3, you identified a suitable mounting location for the switchplate and cut out the mounting hole in the mounting surface. Now follow these steps to mount the switchplate.

a. Fit the switchplate assembly into the mounting hole until it is flush with the mounting surface.

b. Drill four 5/32" (4 mm) holes in the countersunk settings in the switchplate's support frame (see Figure 21).

c. Secure the support frame and switchplate assembly to the mounting surface using four #6 screws.

d. Snap the front cover onto the switchplate to conceal the mounting screws and support frame.

Figure 21: Mounting the Switchplate

Front Cover

Switchplate

Mounting Surface

Ø5/32" (Ø4 mm) Mounting Hole (x4)

#6 Screw (x4)

13
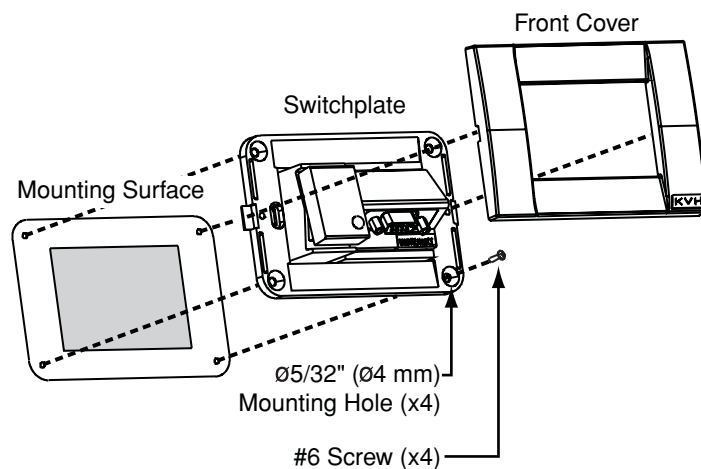
⑫ Enter Your Latitude & Longitude

Follow these steps to enter your vessel's latitude and longitude into the antenna.

NOTE: The antenna will use your position information to speed up satellite acquisition. If the antenna knows where you are, it knows where it should start looking for the satellite (see Figure 22). In addition, for a linear system, the antenna will use your position information to calculate the correct LNB skew angle.

Connect a Laptop to the Antenna

To enter data into the antenna, you first need to connect a Windows® laptop computer to the TracVision system and start Windows HyperTerminal.

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.

a. Using a straight PC serial data cable, connect your laptop to the DB9 Maintenance port on the front of the switchplate (see Figure 23).

NOTE: If your computer does not have a DB9 serial COM port, you can use the USB-to-RS232 adapter manufactured by IOGear (IOGear part number GUC232A) or Belkin (Belkin part number F5U109).

b. Open Windows HyperTerminal and establish the following settings for your COM port (see Figure 24):
- Bits per second: 9600
- Data bits: 8
- Parity: None
- Stop bits: 1
- Flow control: None

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.

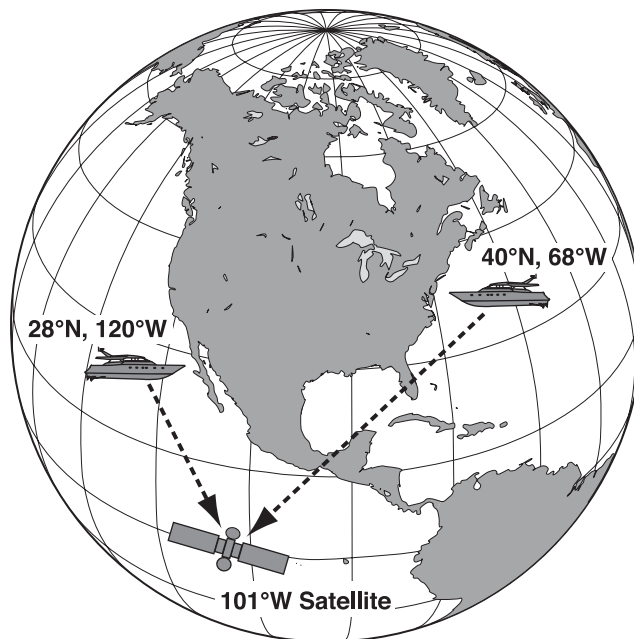Figure 22: Direction to Satellite Depends on Your Location
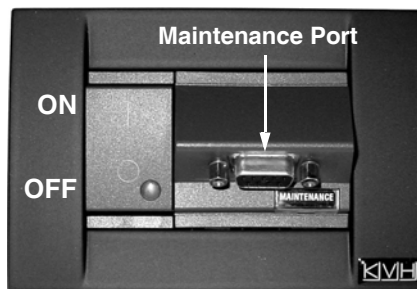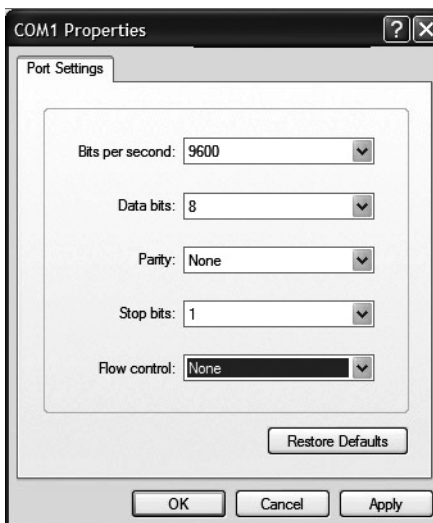

Figure 23: Switchplate Front Panel

Figure 24: HyperTerminal Settings

14

⑫ Continued...

c. Ensure the antenna has a clear, unobstructed view of the sky.

d. Apply power to the satellite TV receiver(s) and the switchplate (see Figure 23 on page 14). Wait two minutes for system startup.

e. Data should now be scrolling in your HyperTerminal window (see Figure 25). If no data appears, check your connections and make sure you're using the right COM port.

Enter Your Latitude and Longitude

To enter your position information into the antenna, enter the following commands via Windows HyperTerminal or KVH Flash Update Wizard:

a. Type **HALT** then press Enter.

b. Type **DEBUGON** then press Enter.

c. Type the following command then press Enter. Italics indicate a variable.

> **GPS,*XX*,*A*,*YYY*,*B***
>
> *XX* = Latitude (0 - 90)
> *A* = **S** (South) or **N** (North)
> *YYY* = Longitude (0-180)
> *B* = **E** (East) or **W** (West)

NOTE: Do not enter decimals. Simply round your latitude and longitude to the nearest whole numbers.

Figure 25: Antenna Data Scrolling in Window


```
RF: SATINSTALL,55,C,57,C
RF: L,A
RF: SATCONFIG
RF: F,A,12486,20000,67,0x0000,R,U,2
RF: F,A,12486,20000,67,0x0000,R,U,2
RF: F,A,12530,20000,67,0x0000,L,U,2
RF: F,A,12530,20000,67,0x0000,L,U,2
RF: F,B,12370,20000,78,0x1004,R,U,3
RF: F,B,12370,20000,78,0x1004,R,U,3
RF: F,B,12530,20000,67,0x0003,L,U,2
RF: F,B,12530,20000,67,0x0003,L,U,2
RF: First lock
```

EXAMPLE

Entering a vessel position of 57°N, 22°E:

> **HALT**
> **DEBUGON**
> **GPS,57,N,22,E**

15

⑬ Select Satellites

Follow these steps to set up the system for the desired pair of satellites.

Enter the following commands via Windows HyperTerminal or KVH Flash Update Wizard:

a. Type **HALT** then press Enter.

b. Type **DEBUGON** then press Enter.

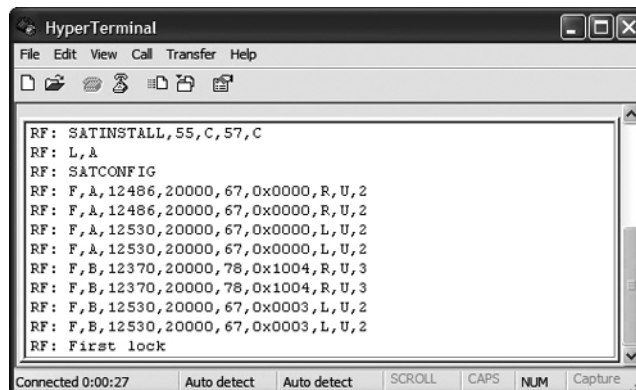c. Type the following command then press Enter. Italics indicate a variable.

> **SATINSTALL,*SatelliteA*,*SatelliteB***

> *SatelliteA* = Name of 1st desired satellite
> *SatelliteB* = Name of 2nd desired satellite

See Appendix B on page 23 for a list of all available satellites. Be sure to enter the satellite names as they appear in the library.

NOTE: If you don't find the satellite you want, you can set up a user-defined satellite (USER 1 or USER 2). See Appendix C on page 24.

d. Type **@L,A** then press Enter.

e. Type **ZAP** then press Enter. The antenna restarts. Wait two minutes for system startup.

f. **(Linear only)** Set up the receiver(s) for the same satellites, and in the same order, that you set them up in the antenna:

Antenna	Receiver	DiSEqC
Sat. A	Alternative 1 or A	DiSEqC 1
Sat. B	Alternative 2 or B	DiSEqC 2

Figure 26: Technician Programming the Antenna

⑭ Set the LNB Skew Angle (Linear only)

Follow these steps to set the antenna's linear LNB to the correct skew angle for your selected satellite and vessel position.

a. Using HyperTerminal or KVH Flash Update Wizard, type **SKEWANGLE** then press Enter. Note the reported skew angle.

*TIP: The SKEWANGLE command provides the correct skew angle for the currently selected satellite only. If a pair of satellites is installed, you might wish to set an **average skew** instead. To find the average skew, select the second satellite then enter the SKEWANGLE command again to get the second satellite's skew angle. Add the two skew angle numbers together and divide by two to get the average.*

b. Turn off and unplug the receiver(s) and disconnect antenna power at the switchplate.

> ⚠ **CAUTION**
>
> Disconnect power from the antenna and the receivers before you adjust the LNB. The antenna's moving parts can cause injury.

c. Remove the antenna's radome, if you installed it earlier in Step 7f.

d. Locate the LNB on the back of the antenna's reflector (see Figure 27).

e. Loosen the two wing screws on the LNB choke feed. These wing screws secure the LNB in place.

f. Adjust the LNB clockwise or counter-clockwise until the skew arrow on the LNB points to the skew angle that you noted in Step 14a (see Figure 28).

> **IMPORTANT!**
>
> Be sure to keep the LNB fully inserted into the choke feed to ensure optimum performance.

g. Tighten the wing screws to secure the LNB.

h. Reinstall the radome (as explained in Steps 7f-g on page 9).

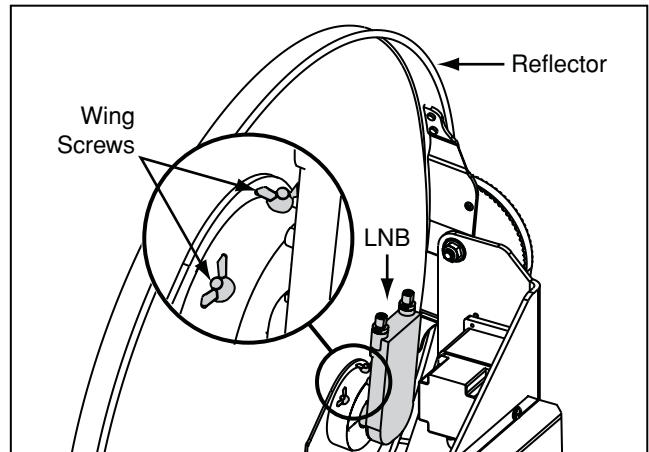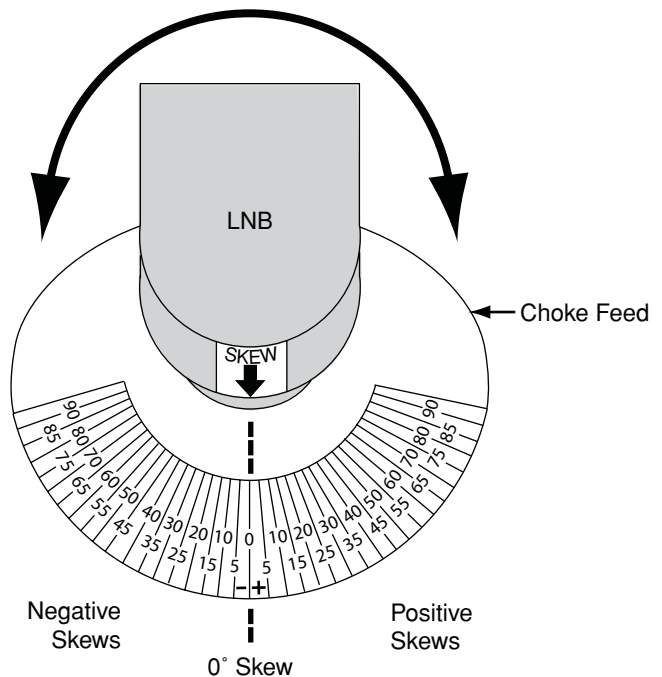Figure 27: Wing Screws Securing the LNB to the Reflector

Figure 28: LNB Skew Angle Adjustment

17

⑮ Educate the Customer

The installation process is complete!

Before you depart the vessel, test the system to verify the antenna works properly. Then give the Customer Welcome Kit to the customer and explain how to use the system. Also be sure the customer understands the following:

- Keep the radome installed on the antenna at all times. The radome protects the antenna's moving parts from wind, rain, and debris.

> ⚠ **WARNING**
>
> It is dangerous to watch TV while piloting a vessel. The TracVision system is intended as a passenger entertainment product only.

- The antenna must have a clear view of the sky to receive satellite TV. Common causes of blockage include trees, buildings, bridges, and onboard equipment (see Figure 29).

- Heavy rain or snow may temporarily interrupt reception.

- Clean the antenna regularly. Dirt buildup on the radome can affect reception.

- The vessel must be located within the selected satellite's coverage area to receive its satellite TV signals. To view satellite coverage maps, visit *www.kvh.com/footprint*.

- Please register the system with KVH. The registration process is quick, easy, online, and ensures the best possible service from KVH. Visit *www.kvh.com/register* or refer to the Product Registration Form for details.

- You need to activate the receiver for the desired satellite TV service before the receiver can decode satellite signals. KVH can help you activate a DIRECTV receiver; just call KVH's Activation Department at 1-888-584-4163 (Mon.-Fri., 8:30 am - 5 pm ET)

- Refer to the *User's Guide* for complete operation instructions and troubleshooting information.

Figure 29: Example of Satellite Blockage

18
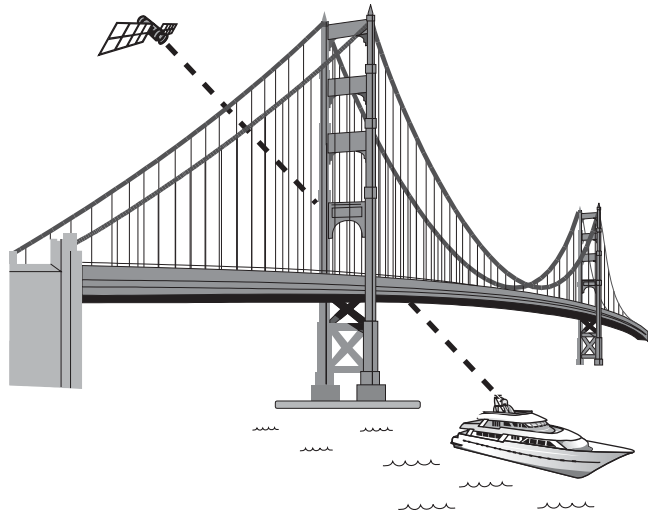
Appendices

This section provides supplemental instructions for advanced configurations. It also provides system wiring diagrams and a switchplate mounting template.

Contents

A Wiring 3+ Receivers

IMPORTANT!

Only antennas equipped with a circular dual LNB or a linear quad LNB can support more than two receivers. Antennas equipped with a linear dual LNB support only two receivers.

Antenna with Circular Dual LNB

(North American systems only)

To connect three or more receivers, follow these steps to install an active (powered) multiswitch between the antenna and the receivers.

NOTE: You can purchase an active multiswitch, Channel Master model 6314IFD, from KVH (order part #19-0123).

1. Connect the RF1 cable from the antenna to the "RHCP +13V" jack on the multiswitch (see Figure 30).

2. Connect the RF2 cable from the antenna to the "LHCP +18V" jack on the multiswitch.

3. Connect the receivers to the individual outputs of the multiswitch.

4. Terminate any unused multiswitch outputs with 75 ohm DC blocks (Channel Master #7184, Radio Shack #15-1259, or equivalent).

IMPORTANT!

Be sure the multiswitch is properly grounded. With the multiswitch grounded, you do not need to ground the individual receivers.

IMPORTANT!

(DIRECTV only) Multiswitches block a receiver's 22 KHz tone that the antenna needs to switch satellites automatically. Therefore, the customer will need to manually switch satellites using the optional TV/SAT Switch (KVH part #01-0245).

Figure 30: Multiswitch Wiring - Antenna with Circular Dual LNB
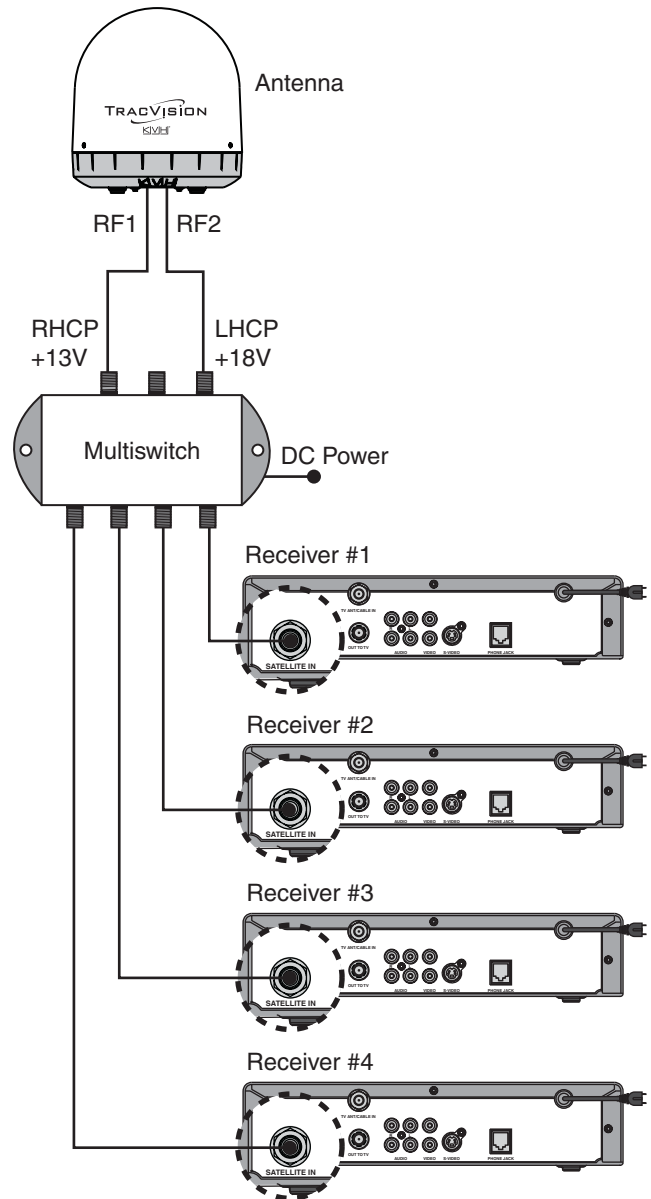
Antenna with Linear Quad LNB

(European systems only)

Follow these steps to connect three or four receivers directly to the antenna.

NOTE: If you need to connect more than four receivers to the TracVision system, install an active multiswitch that generates a 22 KHz tone (such as Spaun model 5602NF - KVH part #19-0413). Connect the multiswitch in accordance with the manufacturer's instructions.

1. Decide which receiver will be the primary receiver. The primary receiver will control satellite selection.

   NOTE: The additional receivers will be able to select any channel carried on the satellite that is currently selected on the primary receiver.

2. Connect the RF1 cable from the antenna to the "Satellite In" jack on the primary receiver (see Figure 31).

3. Connect the RF2 cable from the antenna to the "Satellite In" jack on the second receiver.

4. Connect the RF3 cable from the antenna to the "Satellite In" jack on the third receiver.

5. Connect the RF4 cable from the antenna to the "Satellite In" jack on the fourth receiver.

IMPORTANT!

Be sure all receivers are grounded. If the receiver has a 2-prong power plug, run a ground wire from the receiver's chassis to a suitable ground point. If a potential exists between AC and DC grounds, connect the wire to the switchplate's DC return instead.

Figure 31: Receiver Wiring - Antenna with Linear Quad LNB

22
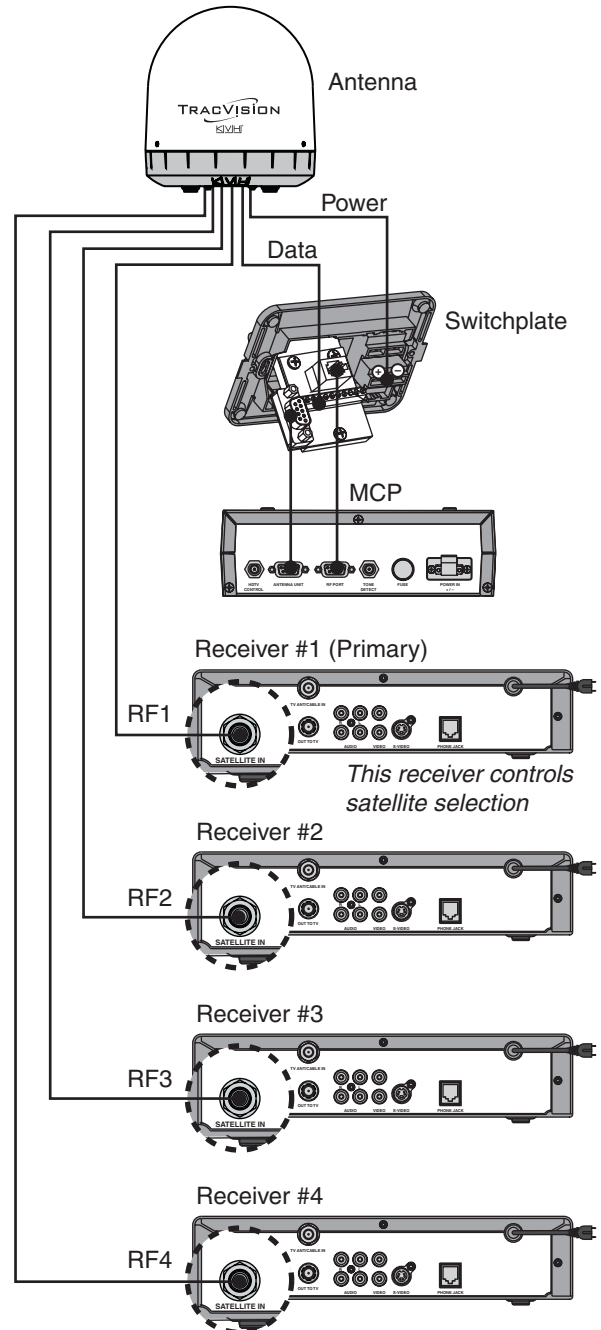
B Satellite Library

The TracVision antenna can track a variety of DVB-compatible and DSS (DIRECTV) satellites. Most popular satellites are programmed in the antenna's library (see the tables below).

North America

Standard Circular Dual LNB Required

Satellite, Longitude	Name in Library
DIRECTV, 72°W	DSS_72
DIRECTV, 101°W	DSS_101
DIRECTV, 110°W	DSS_110
DIRECTV, 119°W	DSS_119
EchoStar, 61°W	ECHO_61
EchoStar, 110°W	ECHO_110
EchoStar, 119°W	ECHO_119
EchoStar, 148°W	ECHO_148
ExpressVu, 82°W	EXPRESSVU
ExpressVu, 91°W	EXPRESSTV

Asia

Standard Circular Dual LNB Required

Satellite	Name in Library
Asiasat 4, 122.2°E	ASIASAT
Sinosat 1*, 110.5°E	SINOSAT

Latin America

Galaxy Circular Dual LNB Required

Satellite	Name in Library
Galaxy 3C, 95°W	GALAXY3CN

Europe

Linear Dual or Linear Quad LNB Required

Satellite	Name in Library
Astra 1, 19.2°E	ASTRA1
Astra 2N, 28.2°E	ASTRA2N
Astra 2S, 28.2°E	ASTRA2S
Hispasat, 30.0°W	HISPASAT
Hotbird, 13.0°E	HOTBIRD
Hotbird WB, 13.0°E	HOTBIRDWB
Sirius, 5.0°E	SIRIUS
Thor, 0.8°W	THOR
Arabsat, 26°E	ARABSAT
Nilesat, 7°W	NILESAT
Turksat 1C, 42°E	TURKSAT1C
Eutelsat W3A, 7°E	EUTEL_W3A

Mexico

Linear Dual LNB Required

Satellite	Name in Library
PAS 9, 58°W	PAS_9

Australia & New Zealand

Linear Dual LNB Required

Satellite	Name in Library
Optus B1*, 160°E	OPTUS_B1
Optus C1, 156°E	OPTUS_C1

* Special LNB required. Call KVH at 1-401-847-3327.

23

C User-Defined Satellites

The satellite library in the TracVision antenna includes two slots for user-defined satellites (USER 1 and USER 2). You can program one or both of these library slots for any satellite you wish that is not already set up in the library.

To configure a user-defined satellite, you will need to program into the antenna the following information about the satellite (see Figure 32):

- Satellite name

- Satellite longitudinal position

- Transponder information for all combinations of polarization and band:
    - vertical high
    - vertical low
    - horizontal high
    - horizontal low
    OR
    - right
    - left

- Frequency

- Symbol rate

- FEC code rate

- Network ID

- Decoder type

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

Figure 32: Identifying a Linear Satellite

Name
Longitude
Decoder type

Vertical High:
Frequency
Symbol rate
FEC code
Network ID

Vertical Low:
Frequency
Symbol rate
FEC code
Network ID

Horizontal High:
Frequency
Symbol rate
FEC code
Network ID

Horizontal Low:
Frequency
Symbol rate
FEC code
Network ID
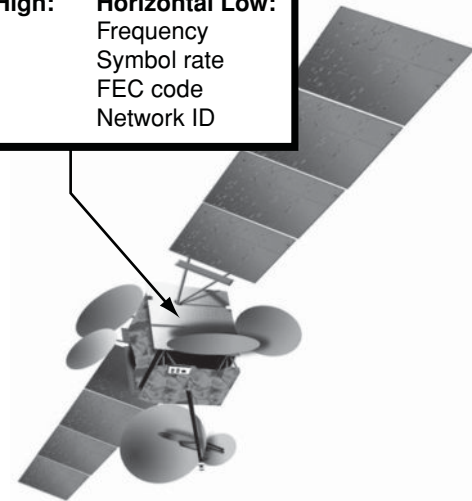
Enter the following commands via Windows HyperTerminal or KVH Flash Update Wizard.

1. Type **HALT** then press Enter.

2. Type **DEBUGON** then press Enter.

3. Type the following **SATCONFIG** command then press Enter. Italics indicate a variable field (see Figure 33 for definitions).

   SATCONFIG,USER*A,B,C,D,E*

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

5. Type the following **@SATCONFIG** command then press Enter. Italics indicate a variable field (see Figure 34 for definitions).

   @SATCONFIG,*F,G,H,I,J,K,L,M,N*

6. Repeat Step C5 for each polarization/band:

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

   OR

   - Right
   - Left

   If your selected satellite does not have data 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 rate	Same value as other transponders
Network ID	0x0000

7. Type **ZAP** then press Enter. The antenna restarts. Wait two minutes for system startup.

8. Follow the instructions in Step 13 on page 16 to select your new USER 1 or USER 2 satellite.

Figure 33: SATCONFIG Command Fields

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

Figure 34: @SATCONFIG Command Fields

Field	Description
F	User-defined satellite in library (A=User 1; B=User 2)
G	Satellite table # (98=User 1; 99=User 2)
H	Frequency, MHz (00000 or 10700-12750)
I	Symbol rate, kilosymbols per second (01000-45000)
J	FEC code rate (12, 23, 34, 56, 67, or 78)
K	Network ID, hexadecimal (0x####)
L	Polarization (V=vertical; H=horizontal; R=right; L=left)
M	LNB down conversion frequency (L=low [9750 MHz]; H=high [10600 MHz]; G=Galaxy [10500 MHz]; S=Sinosat [11300 MHz]; U=USA [11250 MHz])
N	Decoding type (2=DSS; 3=DVB)

ⓒ Continued...

Example - Linear Satellite

The following is an example of programming a linear user-defined satellite (USER 1).

Satellite Name: YOURSAT 123 at 7°W

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

Commands you would enter into the antenna via HyperTerminal or KVH Flash Update Wizard:

HALT
DEBUGON
SATCONFIG,USER1,7,W,3,L
@DEBUGON
@SATCONFIG,A,98,11966,27500,34,0x0800,H,H,3
@SATCONFIG,A,98,11823,27500,34,0x0800,V,H,3
@SATCONFIG,A,98,00000,27500,34,0x0000,V,L,3
@SATCONFIG,A,98,00000,27500,34,0x0000,H,L,3
ZAP

Example - Circular Satellite

The following is an example of programming a circular user-defined satellite (USER 1).

Satellite Name: YOURSAT 456 at 122°W

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

Commands you would enter into the antenna via HyperTerminal or KVH Flash Update Wizard:

HALT
DEBUGON
SATCONFIG,USER1,122,W,3,C
@DEBUGON
@SATCONFIG,A,98,12225,20000,56,0x1004,R,U,3
@SATCONFIG,A,98,12456,20000,56,0x1004,L,U,3
ZAP

Ⓓ Wiring Diagrams

This appendix provides system wiring diagrams
for the following receiver configurations:

- One or two receivers

- Three or more receivers (circular)

- Three or more receivers (linear quad)

┌─ *IMPORTANT!* ──────────────┐

The wiring diagrams on the following pages
are intended as a quick reference only. Be
sure to follow the complete wiring
instructions provided earlier in this manual.

└──────────────────────────────┘

D Continued...

Wiring One or Two Receivers

Antenna

TRACVISION
KVH

Power | *Data*

+12 VDC

Switchplate

Primary Receiver

TV ANT/CABLE IN
OUT TO TV   AUDIO   VIDEO   S-VIDEO   PHONE JACK
SATELLITE IN

RF1

*This receiver controls
satellite selection*

Secondary Receiver - Optional

TV ANT/CABLE IN
OUT TO TV   AUDIO   VIDEO   S-VIDEO   PHONE JACK
SATELLITE IN

RF2

28
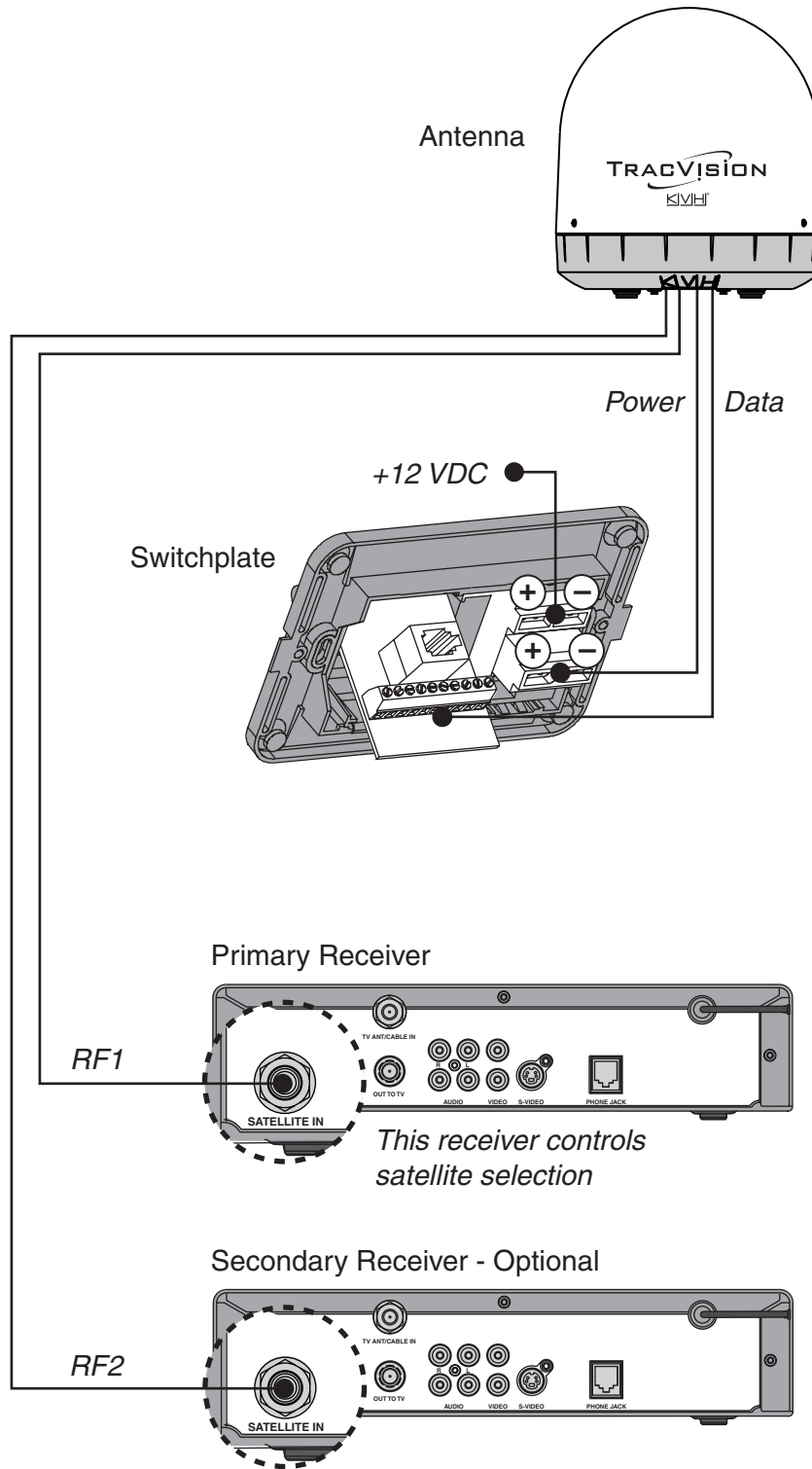
D Continued...

Wiring Three or Four Receivers (Circular)

Antenna

RF2

Power

RF1

Data

+12 VDC

Switchplate

RHCP
+13V

LHCP
+18V

Multiswitch

+12 VDC

Receiver #1

Receiver #2

Receiver #3

Receiver #4

29
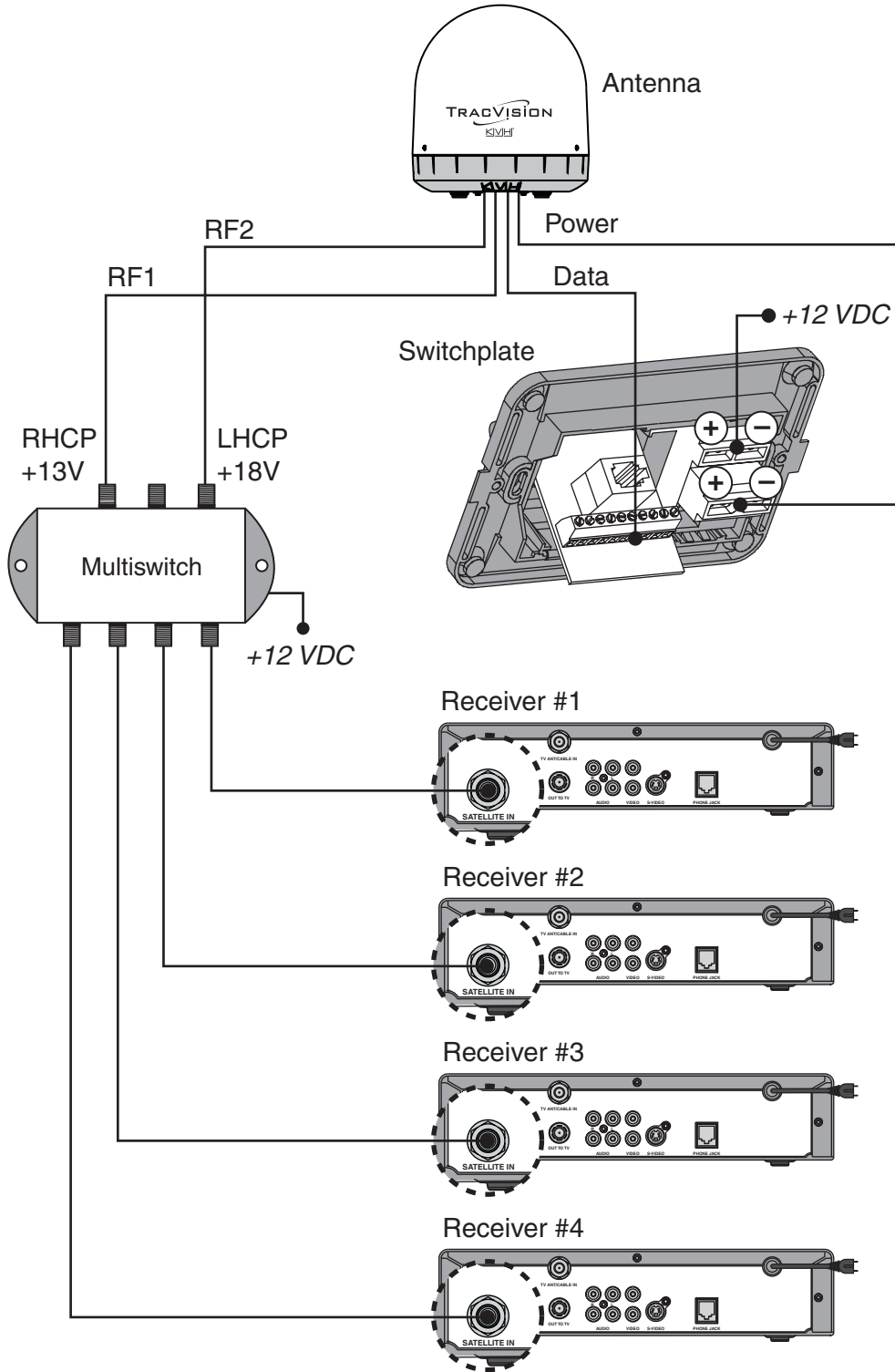
D Continued...

Wiring Three or Four Receivers (Linear Quad)

Antenna

TRACVISION
KVH

Power

Data

+12 VDC

Switchplate

Receiver #1 (Primary)

RF1

TV ANT/CABLE IN
OUT TO TV   AUDIO   VIDEO   S-VIDEO   PHONE JACK
SATELLITE IN

Receiver #2

RF2

TV ANT/CABLE IN
OUT TO TV   AUDIO   VIDEO   S-VIDEO   PHONE JACK
SATELLITE IN

Receiver #3

RF3

TV ANT/CABLE IN
OUT TO TV   AUDIO   VIDEO   S-VIDEO   PHONE JACK
SATELLITE IN

Receiver #4

RF4

TV ANT/CABLE IN
OUT TO TV   AUDIO   VIDEO   S-VIDEO   PHONE JACK
SATELLITE IN

30

Switchplate Mounting Template

Panel Cutout

3/32" (2.25 mm)

2.05" (52 mm)

3.82" (97 mm)

.32" (8 mm)

3.19" (81 mm)

2.36" (60 mm)

.16" (4 mm)

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