KVH Industries, Inc.

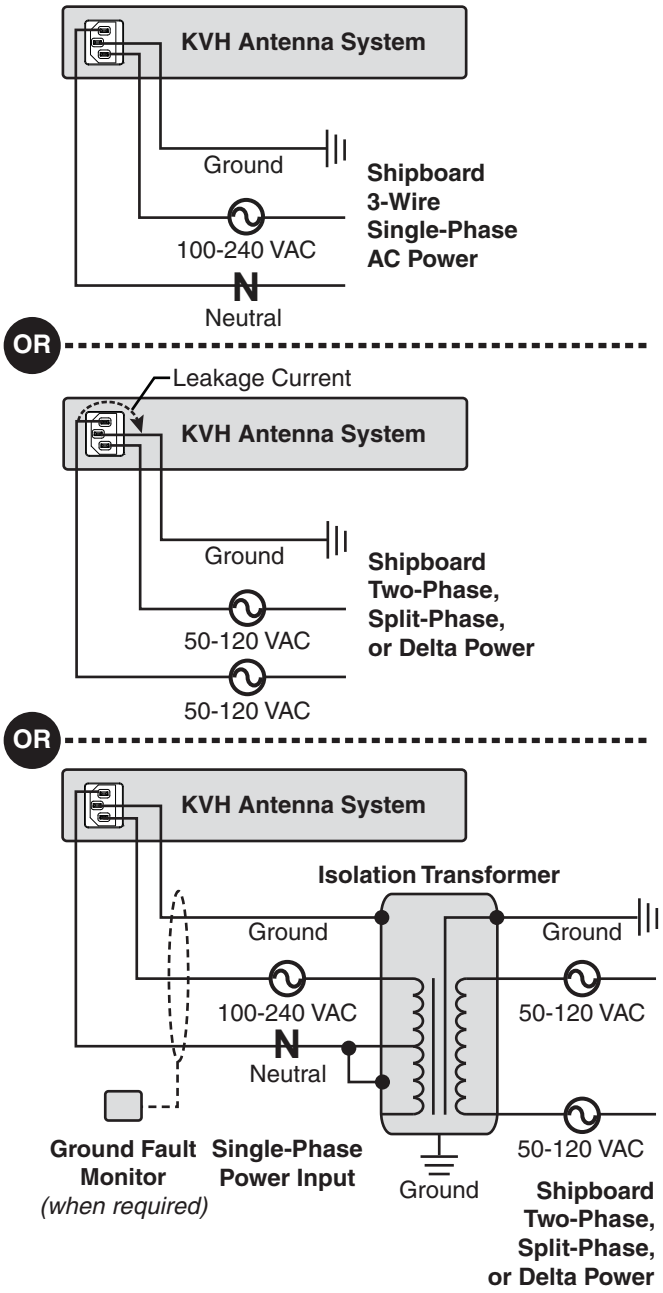
TracVision® HD7

Installation Guide

PLEASE READ!
Important Addendum to the Installation Guide

The KVH antenna system is AC powered, just like the other onboard equipment to which it connects. Therefore, installing the system requires careful examination of the AC power and grounding onboard the vessel.

Figure 1 AC Power Options



AC Power Requirements

The KVH antenna system is designed to run on 3-wire single-phase AC power (hot, neutral, and ground). Voltage between hot-neutral and hot-ground should each measure between 100-240 VAC.

Many large ships use two-phase, split-phase, or delta power instead (3 wires: hot, hot, and ground; no neutral). In this case, voltage between hot-hot measures the proper voltage (100-240 VAC); while hot-ground measures only half the voltage (50-120 VAC). Although KVH antenna systems can operate on this type of power, the excess voltage present on the second phase will cause a small amount of current to leak onto ship's ground. This leakage current might be unacceptable on some vessels. So be sure to check with the customer or ship's electrician and get permission before you run the antenna system on two-phase power. Also be sure to ground the system, as explained on the next page.

If two-phase power is the only available power source onboard, and if leakage current is unacceptable, KVH recommends that you install a suitable isolation transformer to supply single-phase power to the antenna system and run a ground wire from the transformer to ship's ground. In addition, since ground fault protection devices cannot detect faults behind a transformer, you will also need to install a ground fault monitoring device between the isolation transformer and the antenna system if ground fault protection is required on the vessel.

Grounding Requirements

Proper grounding of the antenna system to ship's ground is critically important, as it protects the equipment from lightning and electrostatic discharges (ESD). Failure to ground the chassis of the antenna's control unit risks damage to the antenna and electric shock.

In a standard installation with a connection to single-phase AC power, the antenna system is normally connected to ship's ground through the ground wire of the antenna control unit's power plug. As an alternative, you may run a separate ground wire from the antenna equipment's chassis to ship's ground, or mount the equipment within a grounded equipment rack.

WARNING

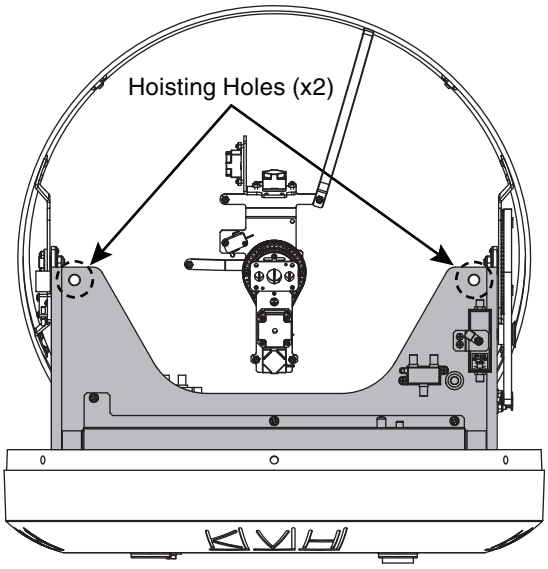
Failure to ground the antenna system properly to ship's ground will cause an unsafe floating ground condition, risking damage to the antenna and electric shock, potentially resulting in DEATH. In a floating ground condition, the difference between the equipment's chassis ground and the ship's ground can measure well over 100 volts, when it normally should not exceed 25 volts. Therefore, **always measure the difference in potential between chassis ground and ship's ground to make certain that there is no dangerous floating ground condition**, even if the ground pin of the vessel's AC power plug appears to be intact.

You are responsible for the quality and safety of the system's installation. Be sure that it meets these critical power and grounding requirements.

PLEASE READ!
Important Addendum to Your Product Manual

You may use the two ∅0.5" (12.5 mm) holes in the antenna frame (see Figure 1) to hoist the antenna to its mounting location, if necessary. DO NOT use any other structure inside the antenna — doing so might damage the antenna.

Figure 1 Antenna Hoisting Holes



TracVision® HD7 Installation Guide

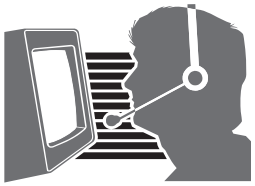
These instructions explain how to install the TracVision HD7 satellite TV antenna system on a vessel. Complete instructions on how to use the system are provided in the User's Guide.

Installation Steps

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.

Technical Support



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

Phone: +1 401 847-3327
E-mail: techs@kvh.com
(Mon.-Fri., 9 am - 6 pm Eastern)
(Sat., 9 am - 2 pm Eastern)

1 Inspect Parts and Get Tools

Before you begin, follow the steps below to ensure you have everything needed 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 the tools and materials listed below. You will need these items to complete the installation.

- #0 Flat-head screwdriver
- #1 Phillips screwdriver
- #2 Phillips screwdriver
- Electric drill and 1/2" (13 mm) bit
- 3" (80 mm) hole saw
- 5/8" open-end wrench
- 9/16" nut driver or wrench
- 7/16" open-end wrench
- Light hammer and center punch
- Wire strippers and terminal lug crimper
- Cutting pliers
- RG-6 or RG-11 RF coax cabling with Snap-N-Seal® F-connectors; refer to Step 4 on page 6 for details
- Satellite TV receivers and/or DVRs
- Surge protector or uninterruptible power supply (UPS) (recommended)
- Silicone sealant, self-vulcanizing tape, or equivalent

Figure 1 TracVision HD7 Antenna

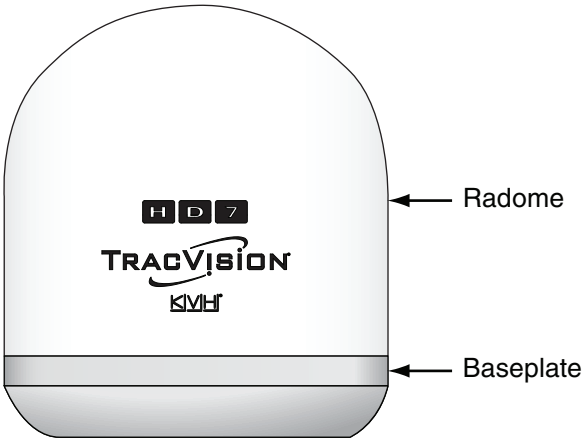
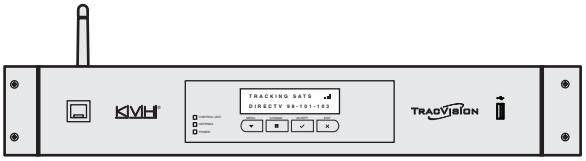


Figure 2 Antenna Control Unit (ACU)



2 Plan the Antenna Installation

Before you begin, consider the following antenna installation guidelines:

- The antenna must be mounted outside the radar's beam pattern.

IMPORTANT!

Do not mount the antenna at the same level as the radar because the radar's energy will overload/damage the antenna's LNB.

- Minimize blockage. The antenna requires a clear view of the sky to receive satellite TV (see Figure 3). 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 4). Also make sure it is flat, level (within ±1°), strong enough to support the antenna's weight (61 lbs (28 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.
- The antenna must be located within 100 ft (30 m) of the ACU.

Figure 3 Blockage from Obstruction

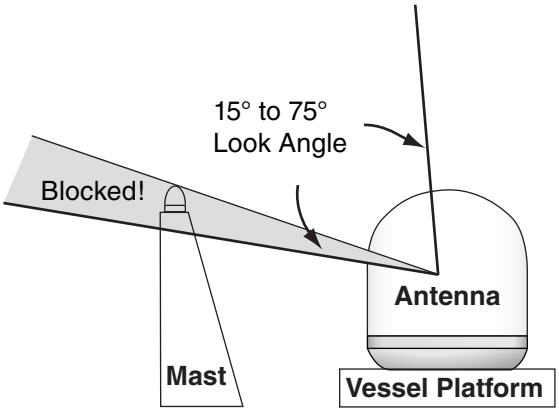
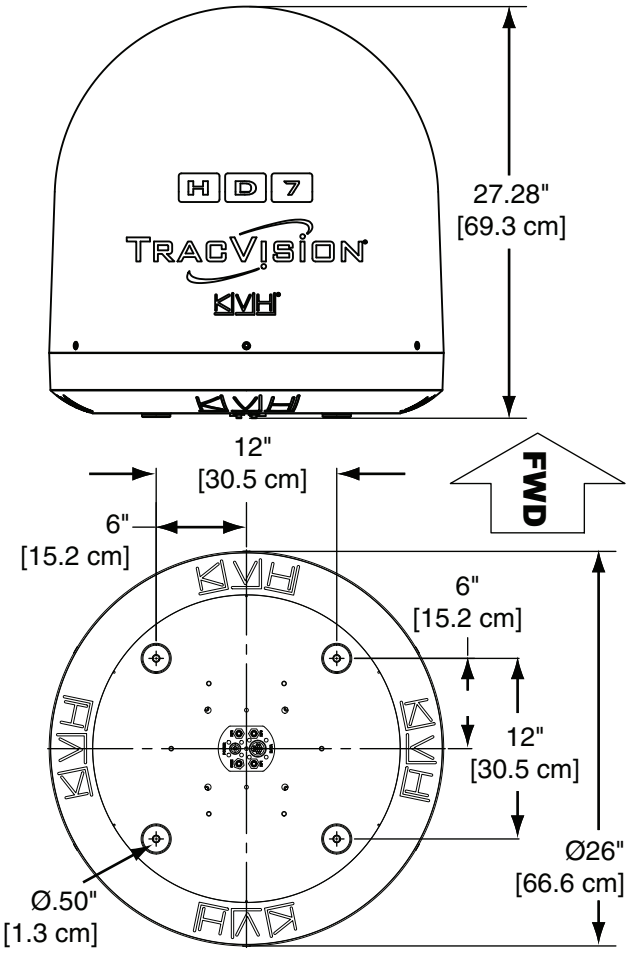


Figure 4 Antenna Dimensions



3 Plan the ACU Installation

Before you begin, consider the following ACU installation guidelines:

- Select an ACU mounting location in a dry, well-ventilated area belowdecks away from any heat sources or salt spray.
- The ACU's front panel should be easily accessible to the user.
- Ensure the ACU mounting location provides adequate WiFi reception. Do not install it in an area surrounded by metal or near any electrical devices that emit RF noise.
- The ACU must be located within 100 ft (30 m) of the antenna.
- You can choose from two ACU mounting options:

Option A - Equipment Rack Mounting

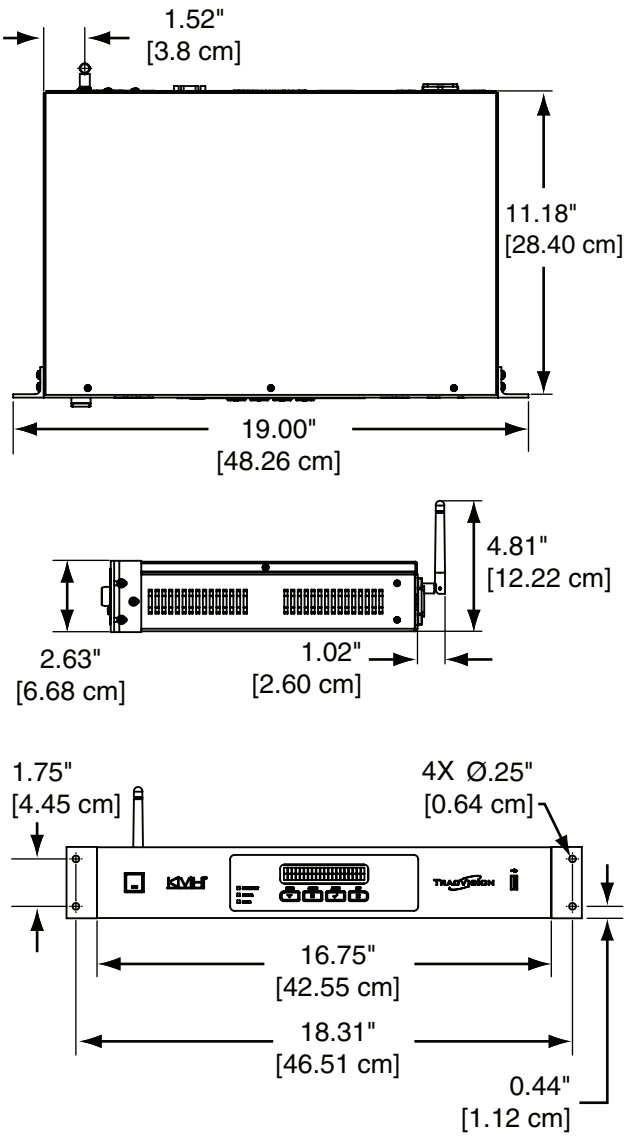
If desired, you can mount the ACU in a standard 19" (48.26 cm) equipment rack.

NOTE: *The ACU is 1.5U in height.*

Option B - Horizontal Surface Mounting

If desired, you can remove the rack-mount brackets from the front panel of the ACU, and secure the ACU underneath or on top of a horizontal surface using the supplied horizontal mounting brackets.

Figure 5 ACU Dimensions



4 Determine RF Cable

Follow the instructions below to determine the quantity and type of RF cables needed.

What Type of RF Cables are Needed?

To ensure optimal performance, refer to the table below to select the required RF cable type for your installation.

For Lengths	Use RF Cable Type
Up to 100 ft (30 m)	RG-6
100 ft (30 m) to 200 ft (60 m)	RG-11

NOTE: *Only use RF cable lengths 200 ft (60 m) or shorter. One 100 ft (30 m) RG-11 RF cable is supplied with the TracVision HD7 system.*

How Many RF Cables are Needed?

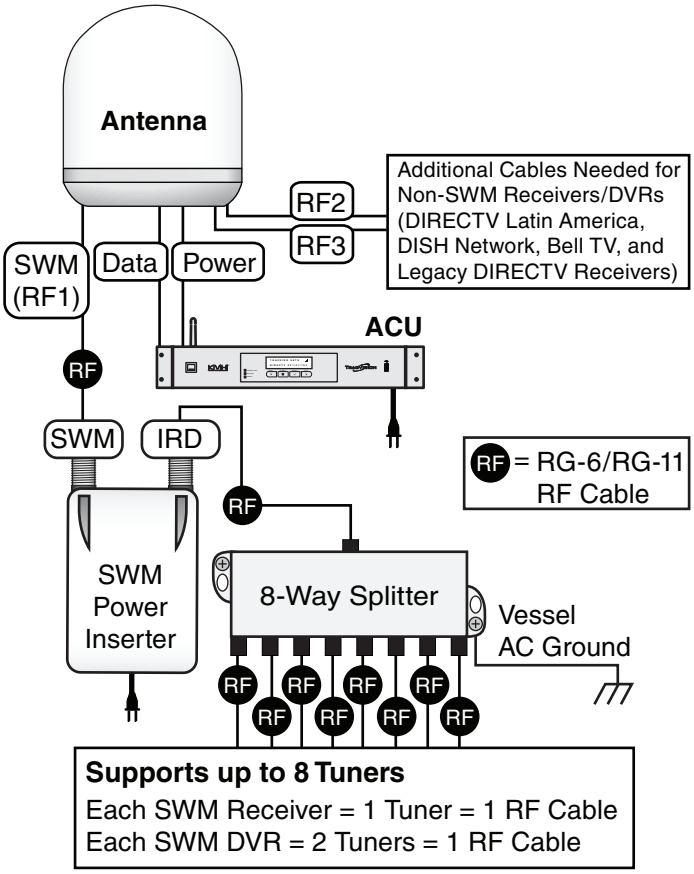
The number of RF cables varies according to the quantity of receivers and/or DVRs. Consider the following guidelines.

- Since the 8-way splitter supports up to 8 tuners, you can connect any number of SWM receivers/DVRs that adds up to 8 tuners or fewer.
- Each receiver has a single tuner, and requires one RF cable. Each DVR has two tuners, and requires one RF cable.
- If you wish to support more than 8 tuners, you can purchase a 16-tuner SWM Expander Kit (KVH part #72-0452-01) or a 32-tuner SWM Expander Kit (KVH part #72-0452-02).

What Type of RF Cable Connectors are Needed?

Be sure to use only Snap-N-Seal F-type connectors. Twist-on connectors and other low-quality connector types degrade performance.

Figure 6 Wiring Overview



NOTE: *Refer to "Wire Supplied Components" on page 15 for complete SWM receiver/DVR connection instructions. Refer to "Wiring Non-SWM Receivers" on page 29 for complete non-SWM connection instructions.*

5 Prepare the Antenna Site

Follow the steps below to drill the antenna's mounting holes and cable access hole.

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 7).

b. Using a light hammer and center punch, mark the locations for the four mounting holes and cable access hole on the mounting surface in the locations indicated on the template.

c. Drill a 1/2" (1.3 cm) hole at the four mounting hole locations. 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" (8 cm) hole at the cable access hole location. Smooth the edges of the hole to protect the cables. Later, you will route the 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.

g. Press the foam seal down firmly onto the mounting surface (not the antenna's baseplate), ensuring the hole in the foam seal aligns with the cable access hole in the mounting surface (see Figure 8).

NOTE: *Apply the foam seal to the vessel mounting surface, not to the antenna's baseplate. You will have difficulty connecting the cables to the antenna if the foam seal is attached to the baseplate.*

Figure 7 Antenna Mounting Holes Layout

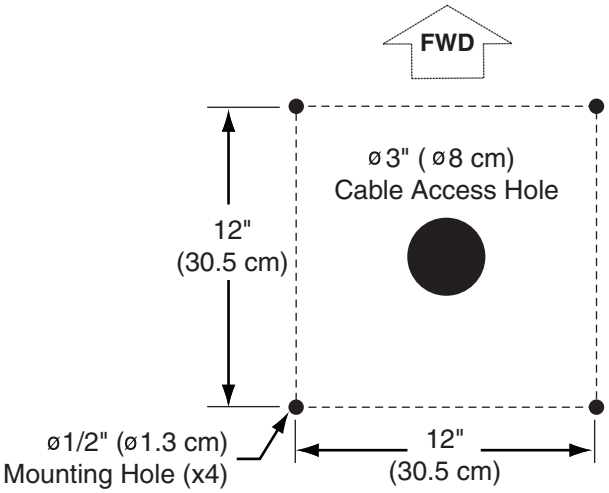


Figure 8 Foam Seal

6 Remove the Restraints

Internal restraints prevent the antenna assembly from moving during shipment. Follow these steps to remove these shipping restraints.

NOTE: *Be sure to keep the shipping restraint hardware for future use.*

a. Using a #2 Phillips screwdriver, remove the six #10-32 Phillips screws securing the radome to the baseplate (see Figure 9).

b. Carefully lift the radome straight up off the antenna. Then set it aside in a safe place.

c. Using a 9/16" nut driver or wrench, remove the four bolts, two brackets, and two washers securing the antenna to the shipping pallet (see Figure 10).

TIP: *You will remove additional shipping restraints after you mount the antenna.*

Figure 9 Radome Screws

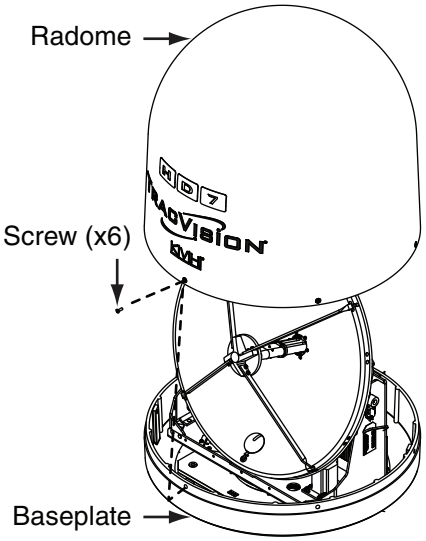
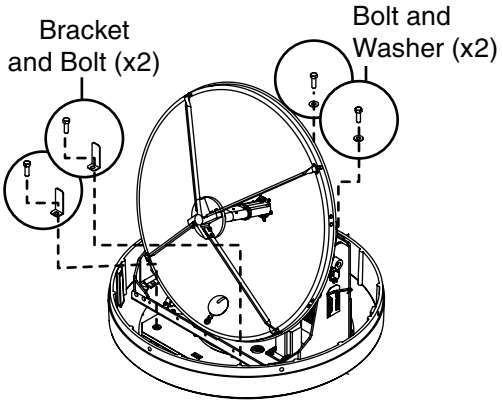


Figure 10 Shipping Restraints



7 Wire the Antenna

Connect the Power and Data Cables

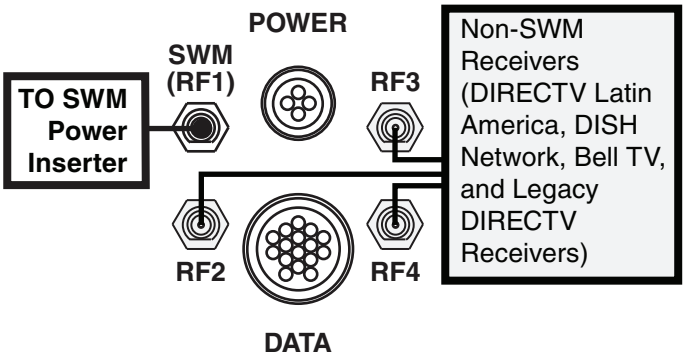
Connect and hand-tighten the data and power cables to the antenna (see Figure 11). Then route the cables belowdecks through the cable access hole. Be sure to leave an adequate service loop, approximately 8" (20 cm) of slack, in the cables for easy serviceability.

Connect an RF Cable to SWM (RF1)

a. Connect an RF cable to the antenna's SWM (RF1) connector. Then, using a 7/16" open-end wrench, tighten the RF cable for 1/4 turn.

b. Seal the RF cable connection with silicone sealant, self-vulcanizing tape, or equivalent.

Figure 11 Antenna Connectors



7 Continued Wire the Antenna

Connect Additional RF Cables - Non-SWM Receivers/DVRs Only

Follow the instructions below if you need to connect non-SWM receivers/DVRs. Non-SWM receivers/DVRs include DIRECTV Latin America, DISH Network, Bell TV, and legacy DIRECTV receivers. SWM-compatible receivers/DVRs are listed below.

- HR20
- HR21
- HR21 Pro
- HR22
- HR23
- H20
- H21
- H22
- H23
- R16
- R22
- R23
- D12
- D13

NOTE: *Additional SWM-compatible receivers/DVRs might become available at any time. If your receiver or DVR model is not listed here, check the receiver's/DVR's manual to see if it is SWM-compatible.*

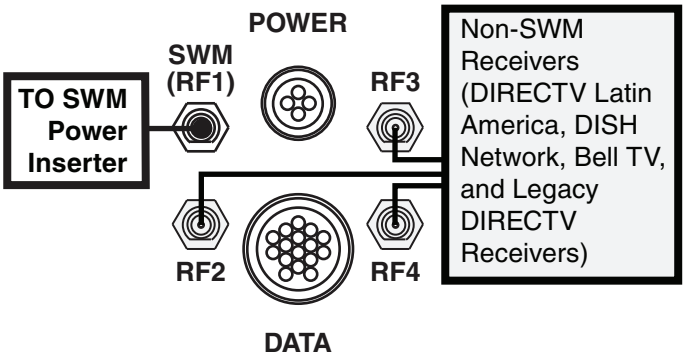
a. Connect RF cables to the antenna's RF2 and RF3 connectors (see Figure 12). Then, using a 7/16" open-end wrench, tighten the RF cables for 1/4 turn.

b. Label the ends of the SWM (RF1), RF2, and RF3 cables for easy identification later.

c. Seal the RF cable connections with silicone sealant, self-vulcanizing tape, or equivalent.

d. Route the cables belowdecks through the cable access hole. Leave an adequate service loop, approximately 8" (20 cm) of slack, in the cables for easy serviceability.

Figure 12 Antenna Connectors



8 Mount the Antenna

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

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

b. Ensure the forward arrow inside the baseplate points toward the bow and is parallel to the vessel's centerline (see Figure 13).

> ***IMPORTANT!***
> You will need to rotate the antenna assembly by hand to see all four mounting holes. Rotate the antenna assembly slowly to avoid damaging the antenna.

c. At each of the four baseplate mounting holes, place a 3/8" fender washer on a 3/8"-16 bolt and insert the bolt into the hole from above (see Figure 14).

NOTE: *To enable proper grounding, ensure the shoulder washers are in place, and were not dislodged during shipping restraint removal (see Figure 14).*

d. Secure each mounting bolt to the mounting surface using a 3/8" shoulder washer, 3/8" flat washer, a 3/8" lock washer, and a 3/8"-16 hex nut from below (see Figure 14).

e. Tighten all four bolts until the four rubber feet on the baseplate are bottomed against the mounting surface and the foam seal is fully compressed. KVH recommends that you tighten the bolts to between 12 and 16 ft-lbs (16.2 and 21.7 N-m) of torque.

f. Using cutting pliers, cut and remove the tie-wrap and wire equipped with paper tags (see Figure 15).

g. Reinstall the radome onto the antenna. Secure the radome in place using the six #10-32 screws you removed in "Remove the Restraints" on page 8.

h. Install a plastic screw cap (supplied in the kit) over the six radome screws.

Figure 13 Forward Arrow Location

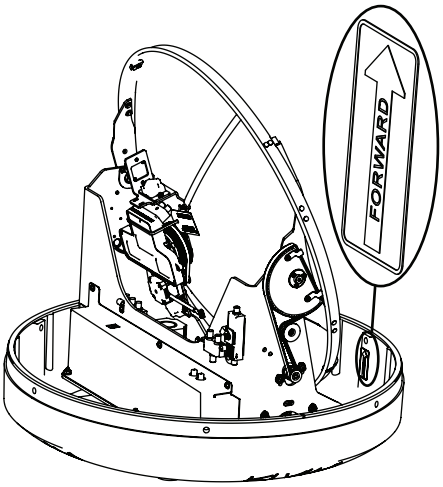


Figure 14 Antenna Mounting

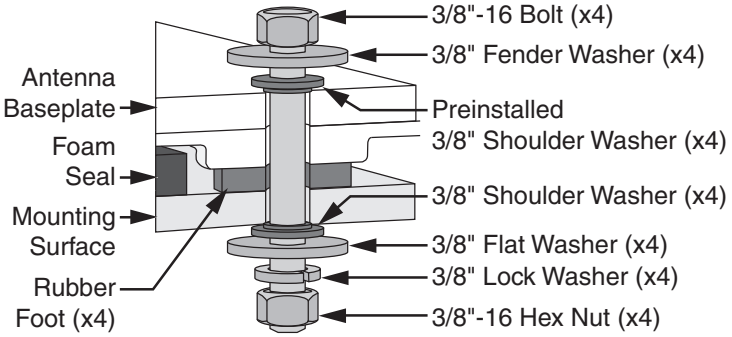
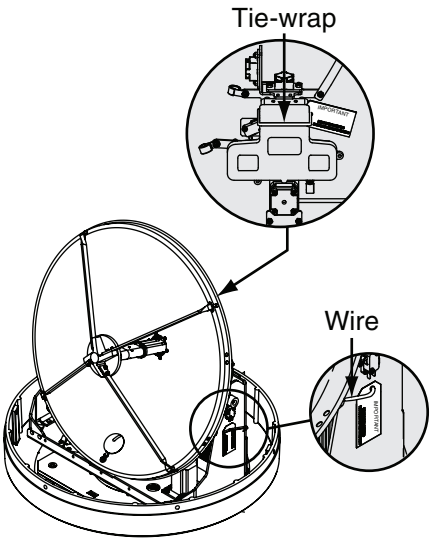


Figure 15 Shipping Restraints



9 Mount the ACU

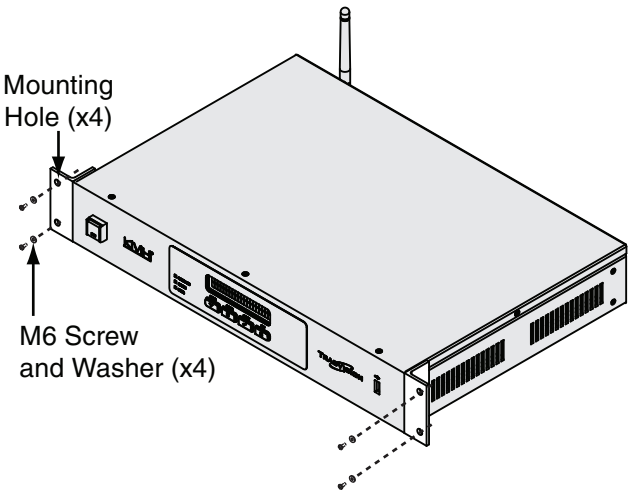
Follow the steps below to mount the ACU to a standard 19" (482.6 mm) equipment rack or a horizontal surface.

Option A - Equipment Rack Mounting

a. Align the four mounting holes on the front panel of the ACU to the mounting holes on the equipment rack (see Figure 16).

b. Secure the ACU to the equipment rack using four M6 screws and washers (see Figure 16).

Figure 16 ACU Equipment Rack Mounting



9 Continued Mount the ACU

Option B - Horizontal Mounting

a. Using a #1 Phillips screwdriver, remove the six screws securing the rack mounting brackets to the sides of the ACU (see Figure 17).

b. Using a #1 Phillips screwdriver, secure the mounting brackets to the sides of the ACU in the bracket orientation for your installation (see Figure 18 or Figure 19). Then secure the mounting brackets using four supplied #6-32 Phillips screws and #6 washers.

c. Using fasteners appropriate for the mounting surface, secure the ACU to the mounting surface using the four mounting bracket holes.

Figure 17 ACU Rack Mounting Bracket Removal

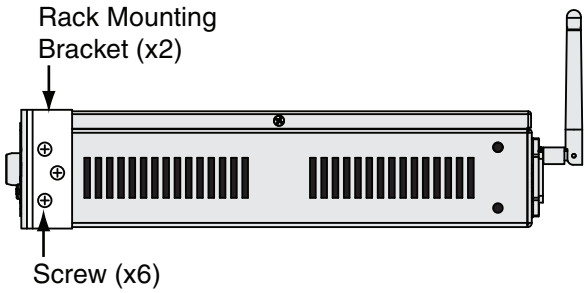


Figure 18 Horizontal Mounting Bracket Orientation

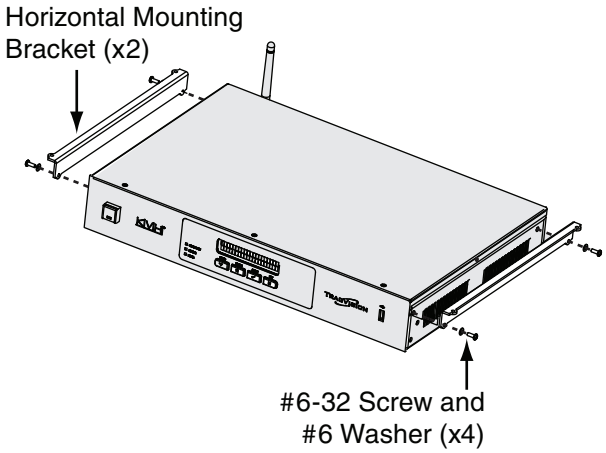
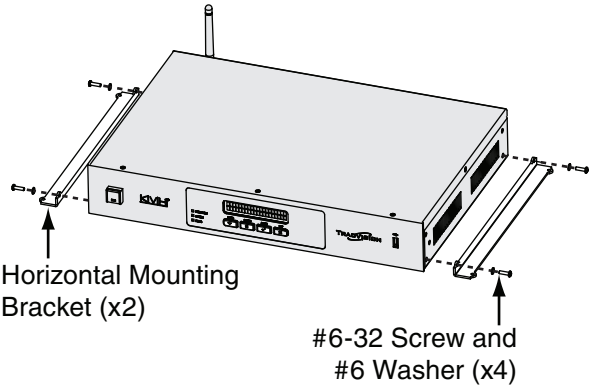


Figure 19 Horizontal Mounting Bracket Orientation



10 Wire the ACU

Follow the steps below to wire the ACU.

a. Connect the antenna's data cable wires to the terminal strip connector (supplied in the kitpack), as shown in Figure 20. Using a #0 flat-head screwdriver, tighten each terminal screw to secure the wires in place.

b. Connect the antenna's power cable wires to the terminal strip connector, as shown in Figure 20. Using a #0 flat-head screwdriver, tighten each terminal screw to secure the wires in place.

c. Press and lock the terminal strip connector into place on the rear of the ACU (see Figure 21).

d. Connect the ACU's 120 VAC power cord to the rear of the ACU (see Figure 21). Then plug the cord into a UPS or surge protector.

e. Optional - If you plan to connect the ACU to an onboard network using the supplied Ethernet cable, connect it to the ACU's Ethernet port (see Figure 22).

Figure 20 Terminal Strip Connector

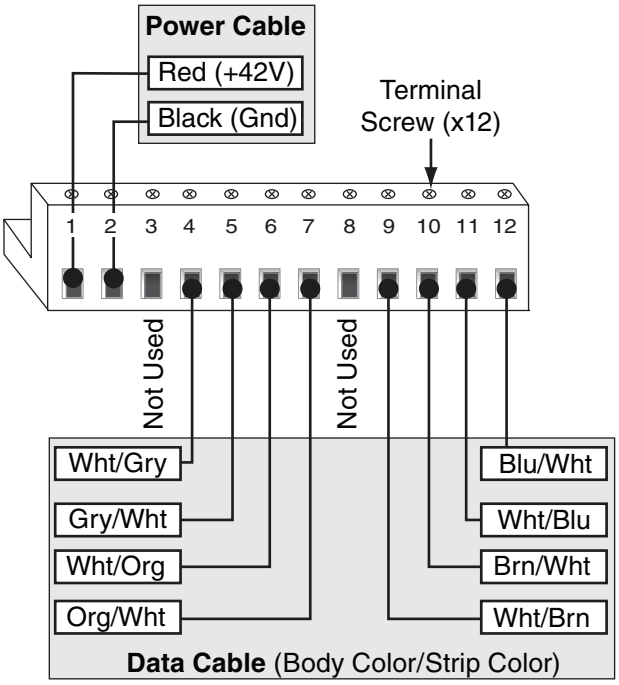


Figure 21 Terminal Strip/Power Supply

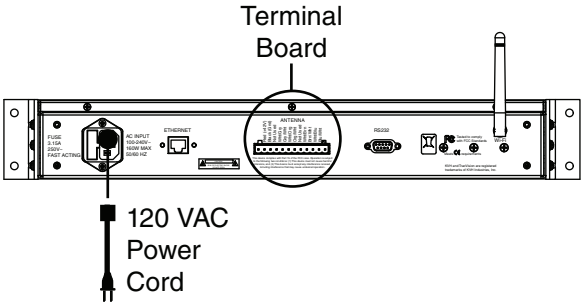
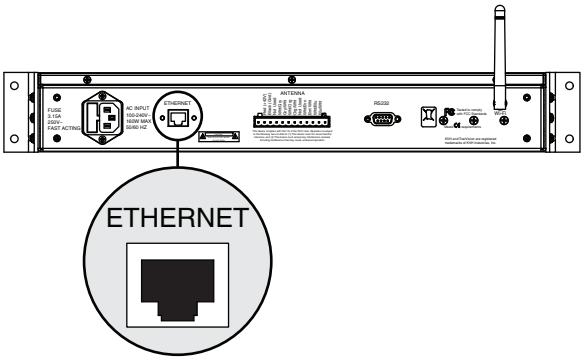


Figure 22 Ethernet Port



11 Wire Supplied Components

Follow the steps below to wire the power inserter, which is required for all installations, and the supplied 8-way splitter, which is only required for DIRECTV service.

NOTE: *Only SWM-compatible splitters may be used.*

Connect and Mount the Power Inserter

a. Attach a Snap-N-Seal F-type connector to the SWM (RF1) cable from the antenna. Then connect the cable to the power inserter's SWM connector (see Figure 23).

b. Using fasteners appropriate for the mounting surface, secure the power inserter to the mounting surface.

Connect and Mount the Splitter

> ***IMPORTANT!***
>
> This section explains how to connect the 8-way splitter for DIRECTV SWM receivers/DVRs only. If you need to install non-SWM receivers/DVRs, refer to the wiring diagrams in "Wiring Non-SWM Receivers" on page 29.

a. Using the screws supplied with the splitter, secure the splitter to an appropriate mounting surface.

b. Fasten one end of the 25 ft (30 m) ground wire (supplied in the kitpack) to the splitter's grounding screw. Connect the other end of the ground wire to a suitable AC ground (see Figure 24).

c. Connect one end of an RF cable to the power inserter's IRD connector. Connect the other end of the cable to the splitter's In connector (see Figure 24).

Figure 23 Power Inserter Connection

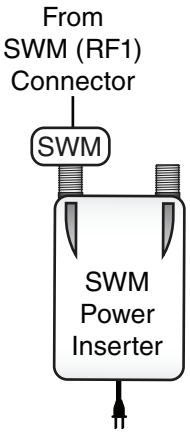
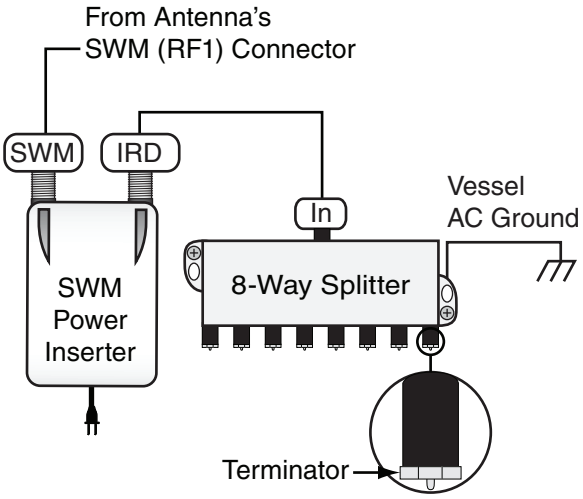


Figure 24 8-Way Splitter Connection (DIRECTV Only)



11 Continued Wire Supplied Components

Connect Receivers/DVRs to the Splitter

Now you need to connect the receivers and/or DVRs to the splitter. Consider the following connection guidelines before you begin:

- Refer to the basic wiring diagrams in Figure 25 and Figure 26.
- Since the 8-way splitter supports up to 8 tuners, you can connect any number of SWM receivers/DVRs that adds up to 8 tuners or fewer.
- Each receiver has a single tuner, and requires one RF cable. Each DVR has two tuners, and requires one RF cable.
- If you need to connect more than 8 SWM-compatible receivers or 4 DVRs (more than 8 tuners total) for DIRECTV HD service, install a 16-tuner SWM Expander Kit (KVH part #72-0452-01) or a 32-tuner SWM Expander Kit (KVH part #72-0452-02). If you wish to connect non-SWM receivers, refer to "Wiring Non-SWM Receivers" on page 29.
- Connector labeling might vary between receiver and DVR models. Refer to the User's Guide for your selected receivers/DVRs for complete information.
- Always terminate any unused splitter connectors with a supplied terminator (see Figure 24 on page 15).

Figure 25 Basic SWM Receiver Wiring Diagram

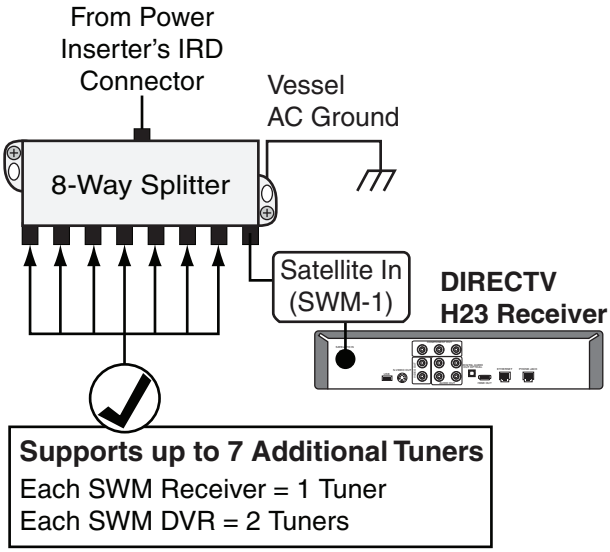
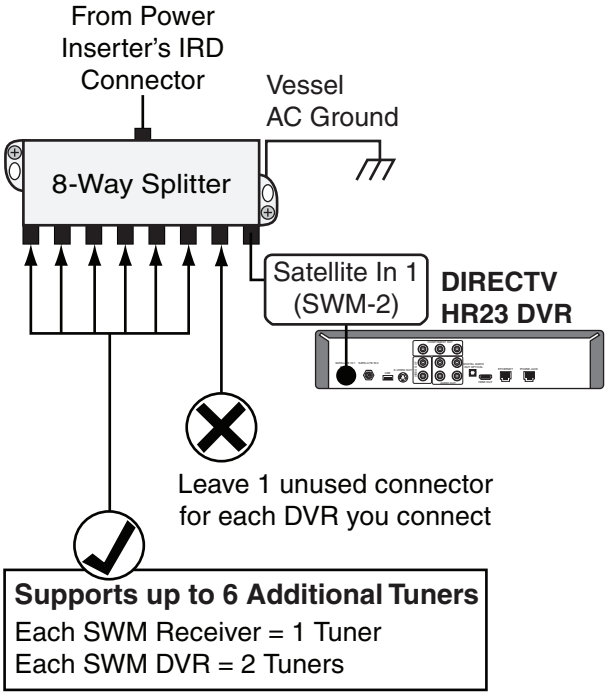


Figure 26 Basic SWM DVR Wiring Diagram



12 Configure Each Receiver/DVR

Follow the steps below to start up the TracVision system and configure each connected DIRECTV receiver/DVR for TracVision use.

> ***IMPORTANT!***
>
> If you need to configure DIRECTV Latin America, DISH Network, Bell TV, or legacy DIRECTV receivers, refer to "Configuring Non-SWM Receivers" on page 33.

Power On the TracVision System

a. Plug in and apply power to the power inserter.

b. Press the power button on the front of the ACU to turn on the TracVision system (see Figure 27).

c. Wait up to 3 minutes for the Tracking screen to display on the ACU (see Figure 28). This indicates system startup is complete.

Power On Connected Components

Plug in and turn on any connected receivers, DVRs, and televisions.

Set Each DIRECTV Receiver/DVR to Dish Type: Slimline-3

a. Press the Menu button on the receiver's/DVR's remote control to display its menu on the connected television.

NOTE: Refer to your selected receiver/DVR manual for specific configuration instructions.

b. At the "Satellite Dish Setup" menu, set the Dish Type to **Slimline-3**. Then choose **Continue** (see Figure 29).

c. Repeat this procedure for each connected receiver/DVR.

Figure 27 ACU Power Button

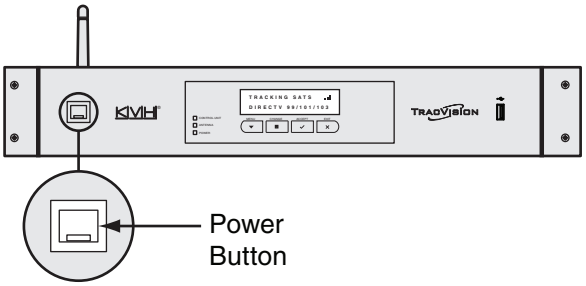
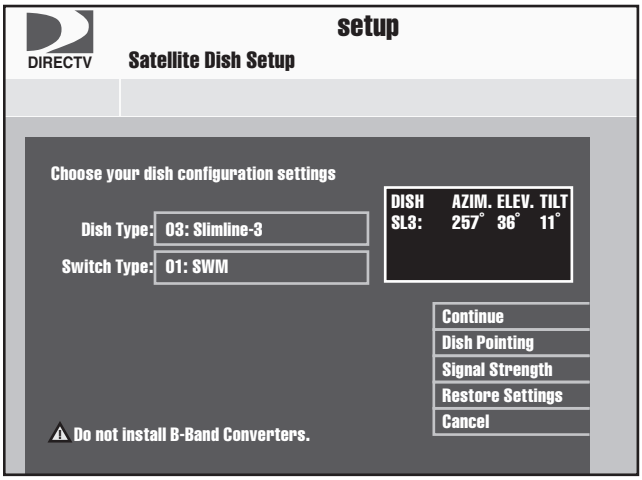


Figure 28 Tracking Screen

Figure 29 SWM Receiver/DVR Configuration



13 Connect the ACU to the Network - Optional

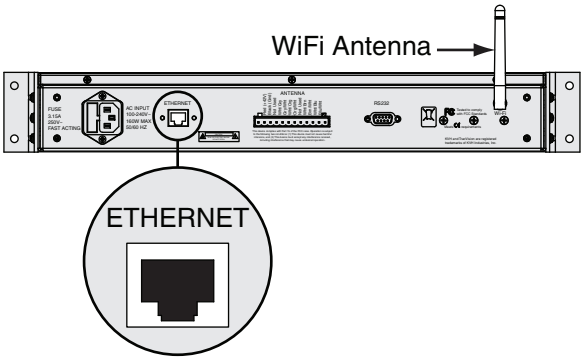
This section details the ACU's default network settings, other available options, and methods for changing settings. When the TracVision system is connected to the vessel's onboard network, or you connect to the TracVision HD7 system using an ad-hoc WiFi connection, the following features are enabled:

- Remote operation of the TracVision HD7 system
- Remote viewing of the system's status, including current satellite signal levels, satellite settings, and other system information

NOTE: *When setting up a wireless network, be sure to apply security settings, such as encryption, to protect your network from outside intrusion. If your network is not secure, outsiders within range of your wireless network will be able to use your wireless connection without your knowledge.*

TIP: *The ACU is Bonjour®-enabled. Once the ACU is connected to the vessel's onboard network, you can use Bonjour to easily connect to the ACU using a PC on the same network, without requiring the IP address. The ACU is displayed in Bonjour as:* ***hd7-<ACU serial number>****. For more information, visit www.apple.com/support/bonjour.*

Figure 30 Connection Options



13 Continued Connect the ACU to the Network

Network Connection Options

Choose one of the options below to enable a network connection.

NOTE: *You can find the IP address assigned to the ACU in the View Wi-Fi Settings and View Enet Settings menus (see Figure 31).*

- Connect to the vessel's onboard network using the ACU's Ethernet port
- Connect to the vessel's onboard network using the ACU's built-in WiFi antenna

Default Ethernet Settings

The ACU's Ethernet port is set up as a DHCP client; the vessel's router can automatically assign an IP address when connected to the ACU's Ethernet port. In this case, you will need to connect your PC to the network, or use an existing PC connected to the network, to access the ACU's web interface.

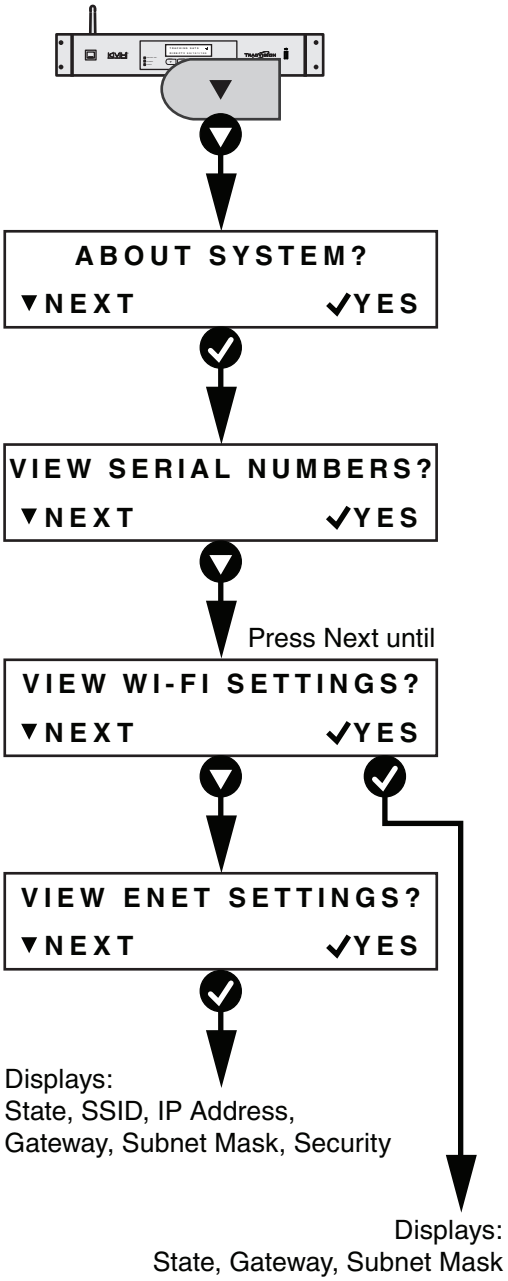
If there is no Ethernet network onboard the vessel, and/or no DHCP server is on the network, the ACU will assign itself an IP address that begins with 169.254 (i.e. 169.254.x.x). In this case, you can connect your PC directly to the ACU's Ethernet port. If your PC is configured for automatic IP assignment by default, it should also assign a similar IP address on the same IP network.

Default WiFi Settings

The ACU's WiFi adapter is configured for an ad-hoc connection, with security disabled. This allows you to connect a PC directly to the ACU via its wireless antenna.

If you wish to connect the ACU to the vessel's onboard network using the WiFi connection, set the ACU's WiFi State to "Infrastructure" at the ACU's System Settings>Wi-Fi Settings menu.

Figure 31 Viewing Network Settings on the ACU



13 Continued Connect the ACU to the Network

Changing Network Settings

Choose one of the methods below if you need to change network settings (such as the IP address or subnet mask):

- Option A - Use the Web Interface (Recommended)
- Option B - Use the ACU Buttons

Option A - Use the Web Interface (Recommended)

Follow the instructions below to use the web browser on your PC to change network settings.

a. Using a PC connected to the vessel's network, open the web browser.

b. Enter the ACU's IP address into the web browser's address bar (Figure 32).

c. Log in to the web interface using the username and password below (see Figure 33).

username: **admin**
password: **password**

d. Select the Settings tab. Then choose Edit to modify the desired network settings (see Figure 34).

Figure 32 Entering the IP Address (Example)

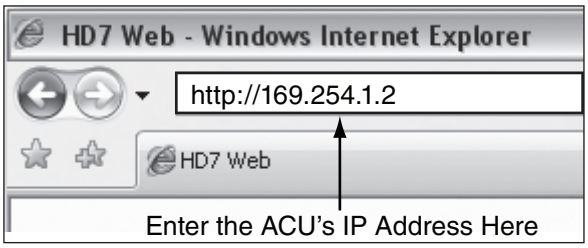


Figure 33 Web Interface Login Screen

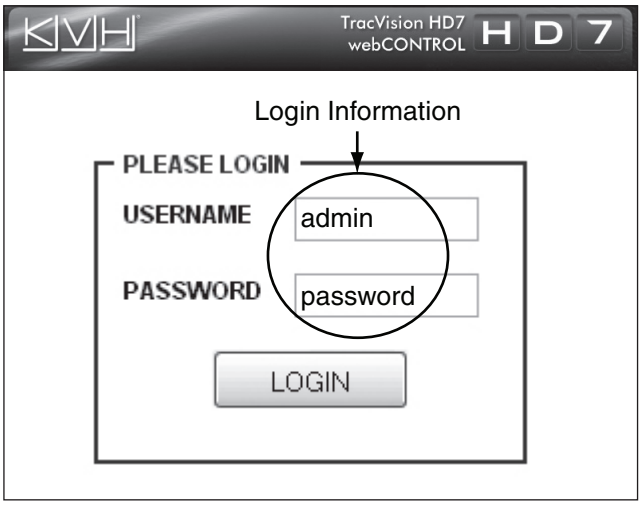
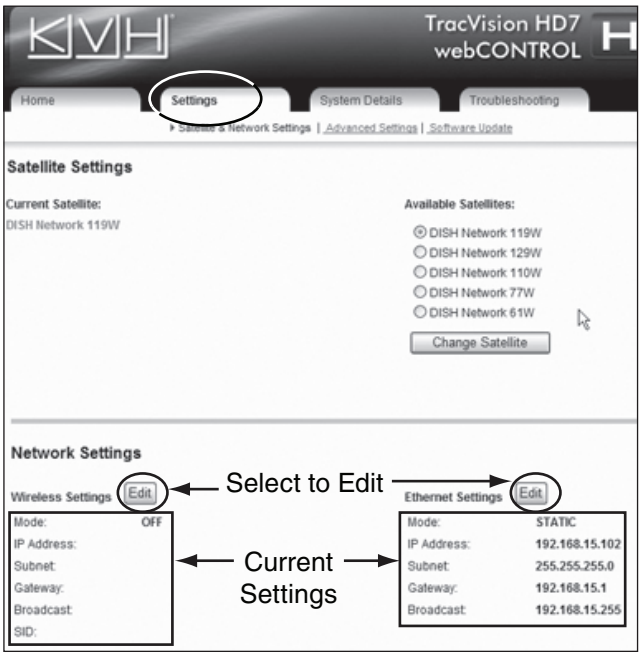


Figure 34 Network Settings on the Web Interface

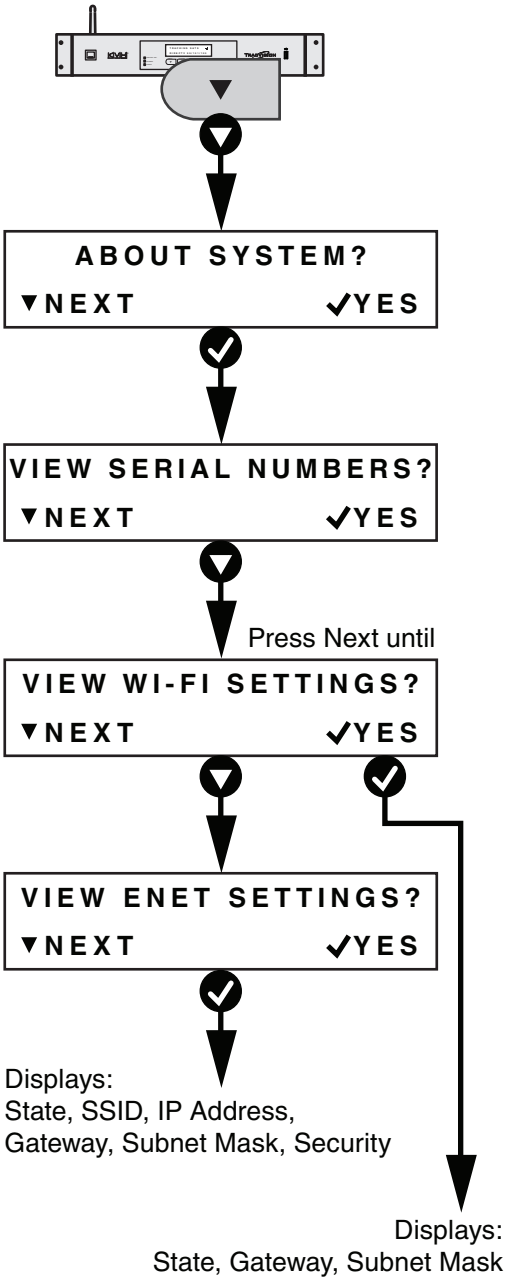


13 Continued Connect the ACU to the Network

Option B - Use the ACU Buttons

Use the flowchart in Figure 35 to access the Wi-Fi Settings or Ethernet Settings menu and change the desired network settings.

Figure 35 Network Settings Menus



14 Update the Software if Necessary

Choose one of the following options to check for and install software updates.

NOTE: *Checking for updates requires Internet access. Be sure to restart the TracVision system before installing software updates.*

TIP: *You can view the ACU's current IP address and other Ethernet settings at any time using the ACU buttons (see Figure 31 on page 19).*

Option A - Use the Web Interface

a. Enter the ACU's IP address into the address bar of your web browser (see Figure 32 on page 20).

b. Log in to the web interface using the username and password below.

username: **admin**
password: **password**

c. Select Check for Updates (see Figure 36). Then follow the onscreen instructions to check for and install available software updates.

Option B - Use a USB Flash Drive

If you already have new software saved on a USB flash drive, just plug the flash drive into the USB port and follow the ACU's onscreen instructions to update the software (see Figure 37).

Option C - Use the TracVision iPhone® App

If you have the KVH TracVision iPhone/iPod touch application loaded and configured for use with the network, follow the app's onscreen instructions to check for and install new software.

You can download the TracVision iPhone app for free from the Apple iTunes® app store.

Figure 36 Check for Updates on Web Interface

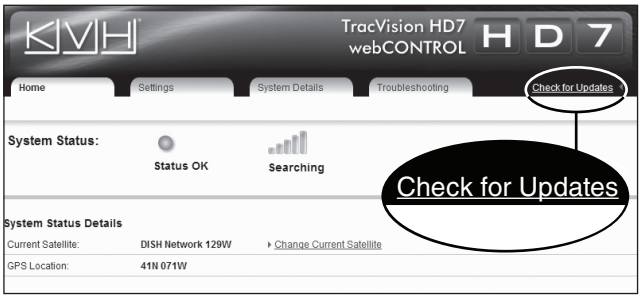
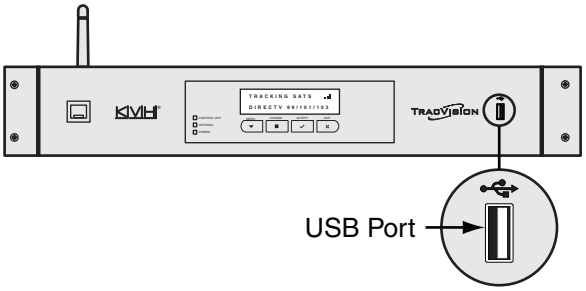


Figure 37 USB Port on ACU



NOTE: *The software update (.kvh) file must be located in the USB flash drive's root directory. Be sure to keep only one update file on the flash drive.*

15 Educate the Customer

Before you leave the vessel, test the system to ensure the antenna works properly. Then give the Customer Welcome Kit to the customer and explain how to use the system. Ensure the customer understands the following:

- Keep the radome installed on the antenna at all times.
- The antenna must have a clear view of the sky to receive satellite TV. Common causes of blockage include bridges and boat masts.
- Heavy rain or snow might temporarily interrupt reception.
- Clean the radome regularly. Dirt buildup can affect reception.
- The vessel must be located within the satellites' coverage area to receive satellite TV signals. To view satellite coverage information, 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 any connected receivers/DVRs for the desired satellite TV service before you can watch television. KVH can help activate a DIRECTV or DISH Network receiver/DVR; just call KVH's Activation Department at **1-866-551-8004** for DIRECTV or **1-866-399-8509** for DISH Network.
- Refer to the supplied TracVision HD7 User's Guide for operation instructions and troubleshooting information.
- You can use the KVH TracVision iPhone/iPod touch app to communicate with the TracVision system, as long as it is connected to the vessel's onboard network. You can download the app for free at the Apple iTunes store.

Figure 38 Example of Blockage

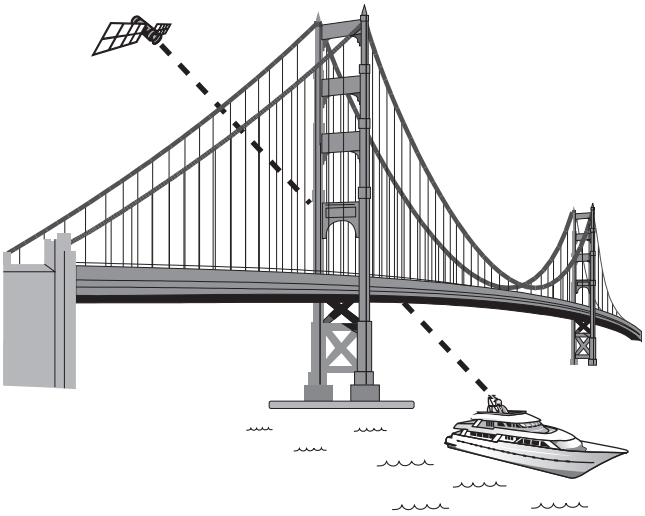


Figure 39 KVH TracVision iPhone/iPod touch App

Appendices

This section provides additional information on receiver compatibility, receiver setup, and custom wiring instructions.

Contents

A Using an Ad-Hoc Connection

If the ACU is not connected to an onboard network and you wish to connect your PC to the ACU using an ad-hoc WiFi connection, follow the instructions below to view or modify ad-hoc settings.

NOTE: *The ACU is Bonjour®-enabled. Once the ACU is connected to the vessel's onboard network, you can use Bonjour to easily connect to the ACU using a PC on the same network, without requiring the IP address. The ACU is displayed in Bonjour as:* ***hd7-<ACU serial number>****. For more information, visit www.apple.com/support/bonjour.*

Viewing Settings

Follow the steps below to view the current WiFi settings.

a. Use the flowchart in Figure 40 to access the View Wi-Fi Settings menu. Then press "Next" to scroll through the current settings.

NOTE: *The WiFi state must be set to "Ad-hoc" to enable an ad-hoc connection (see Figure 41). If you need to change this setting or other WiFi settings, skip to "Modifying Settings" on page 28.*

b. If you plan to connect using an ad-hoc connection later, record the following WiFi settings:

- SSID
- IP address
- Password (if WEP is enabled)

Figure 40 View WiFi Settings

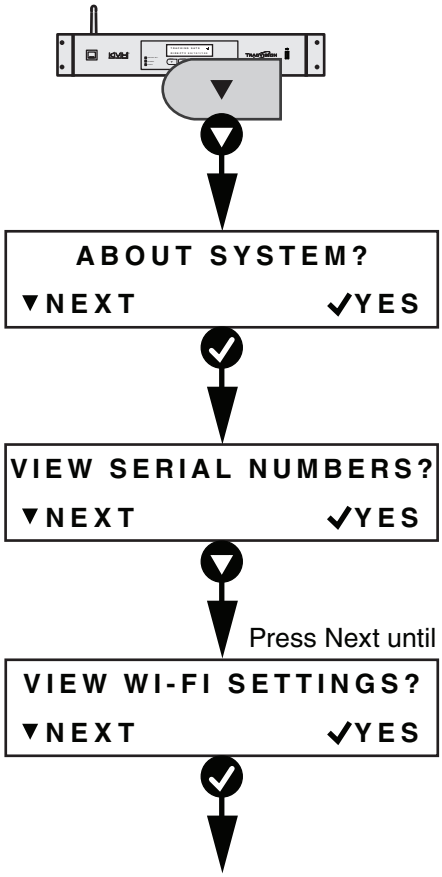


Figure 41 Ad-Hoc WiFi State

A Continued Using an Ad-Hoc Connection

Modifying Settings

Follow the instructions below to use the web browser on your PC to modify network settings.

NOTE: *When setting up a wireless network, be sure to apply security settings, such as encryption, to protect your network from outside intrusion. If your network is not secure, outsiders within range of your wireless network will be able to use your wireless connection without your knowledge.*

a. Using your PC, establish an ad-hoc connection to the ACU.

TIP: *Refer to "Viewing Settings" on page 27 for connection information.*

b. Enter the ACU's IP address into the web browser's address bar (Figure 42).

c. Log in to the web interface using the username and password below (see Figure 43).

username: **admin**
password: **password**

d. Select the Settings tab. Then choose Edit to modify the desired network settings (see Figure 44).

Figure 42 Entering the IP Address (Example)

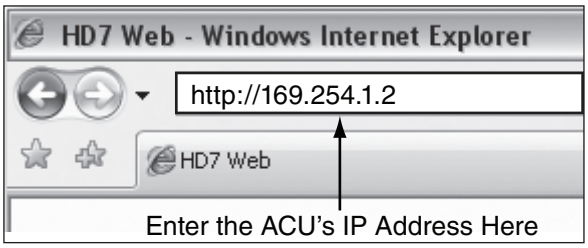


Figure 43 Web Interface Login Screen

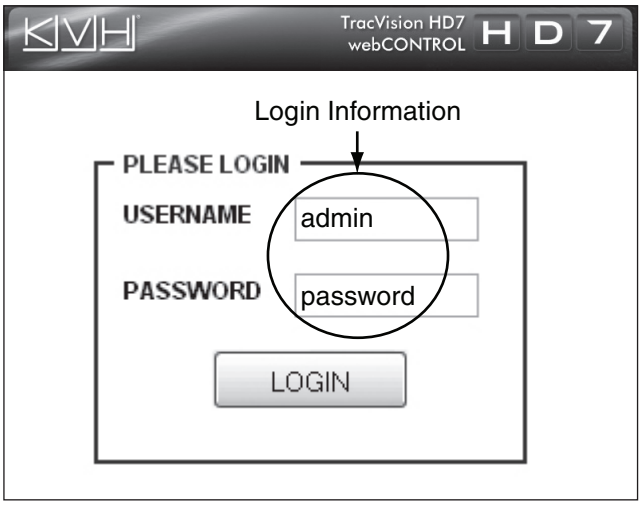
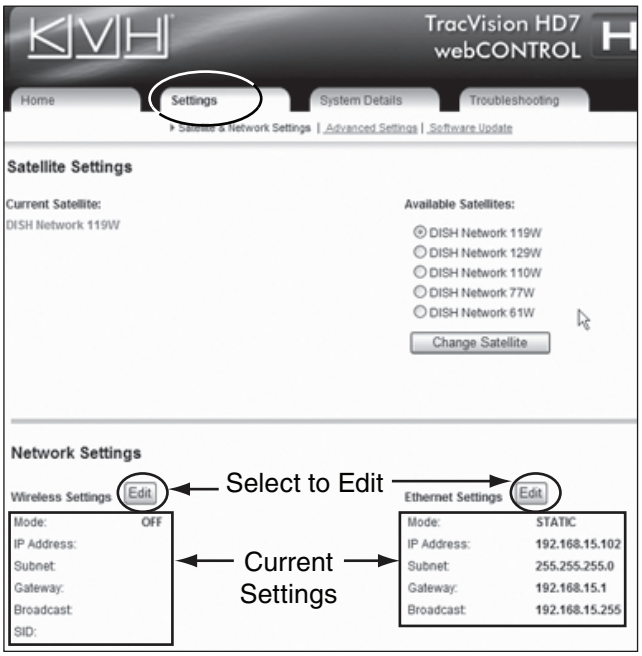


Figure 44 Network Settings on the Web Interface



B Wiring Non-SWM Receivers

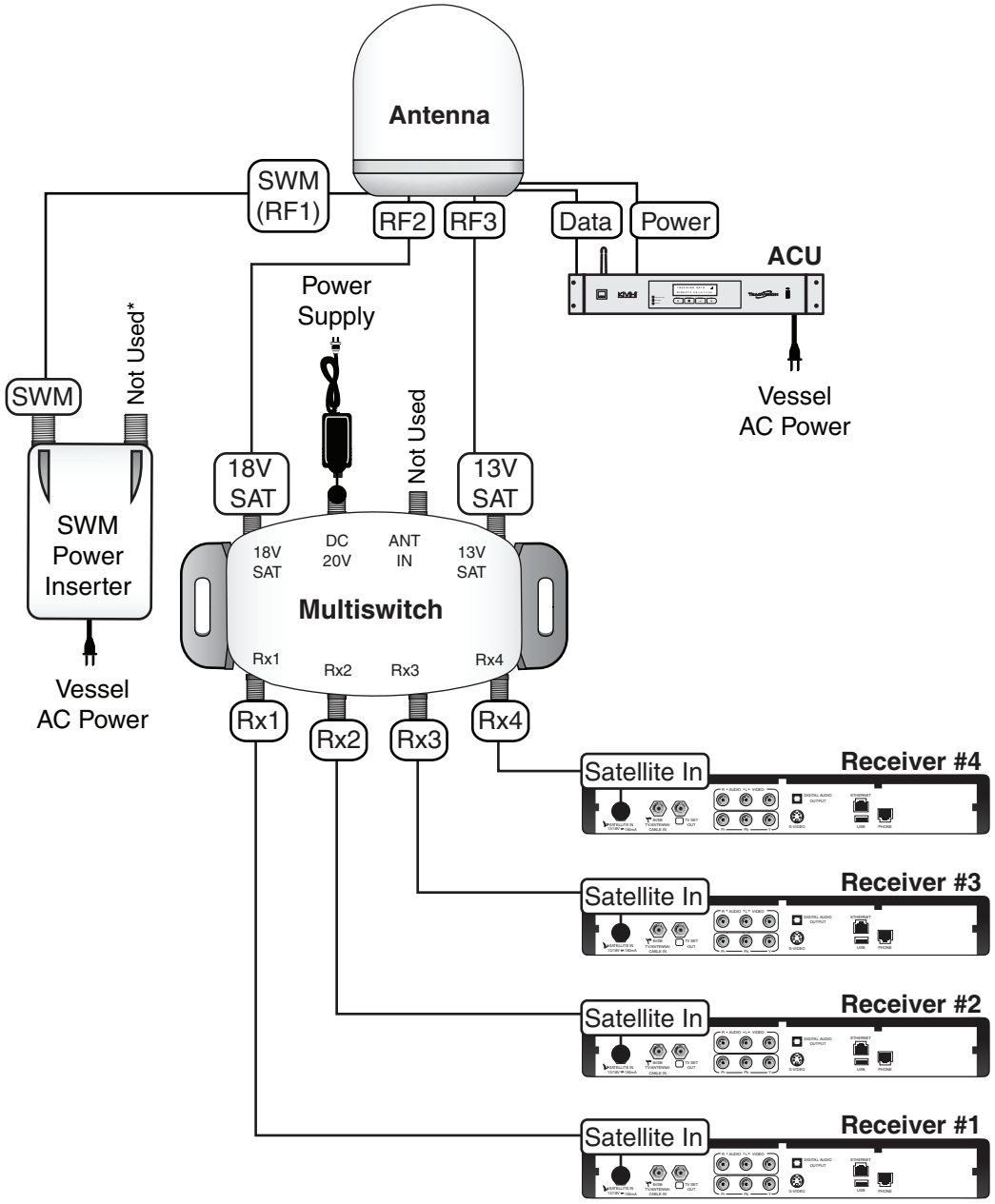
The following wiring diagrams illustrate how to connect non-SWM receivers/DVRs to the TracVision HD7 system. Non-SWM receivers/DVRs include DIRECTV Latin America, DISH Network, Bell TV, and legacy DIRECTV receivers. SWM-compatible receivers/DVRs are listed below.

- HR20
- HR21
- HR21 Pro
- HR22
- HR23
- H20
- H21
- H22
- H23
- R16
- R22
- R23
- D12
- D13

NOTE: *Additional SWM-compatible receivers/DVRs might become available at any time. If your receiver or DVR model is not listed here, check the receiver's/DVR's manual to see if it is SWM-compatible.*

B Continued Wiring Non-SWM Receivers

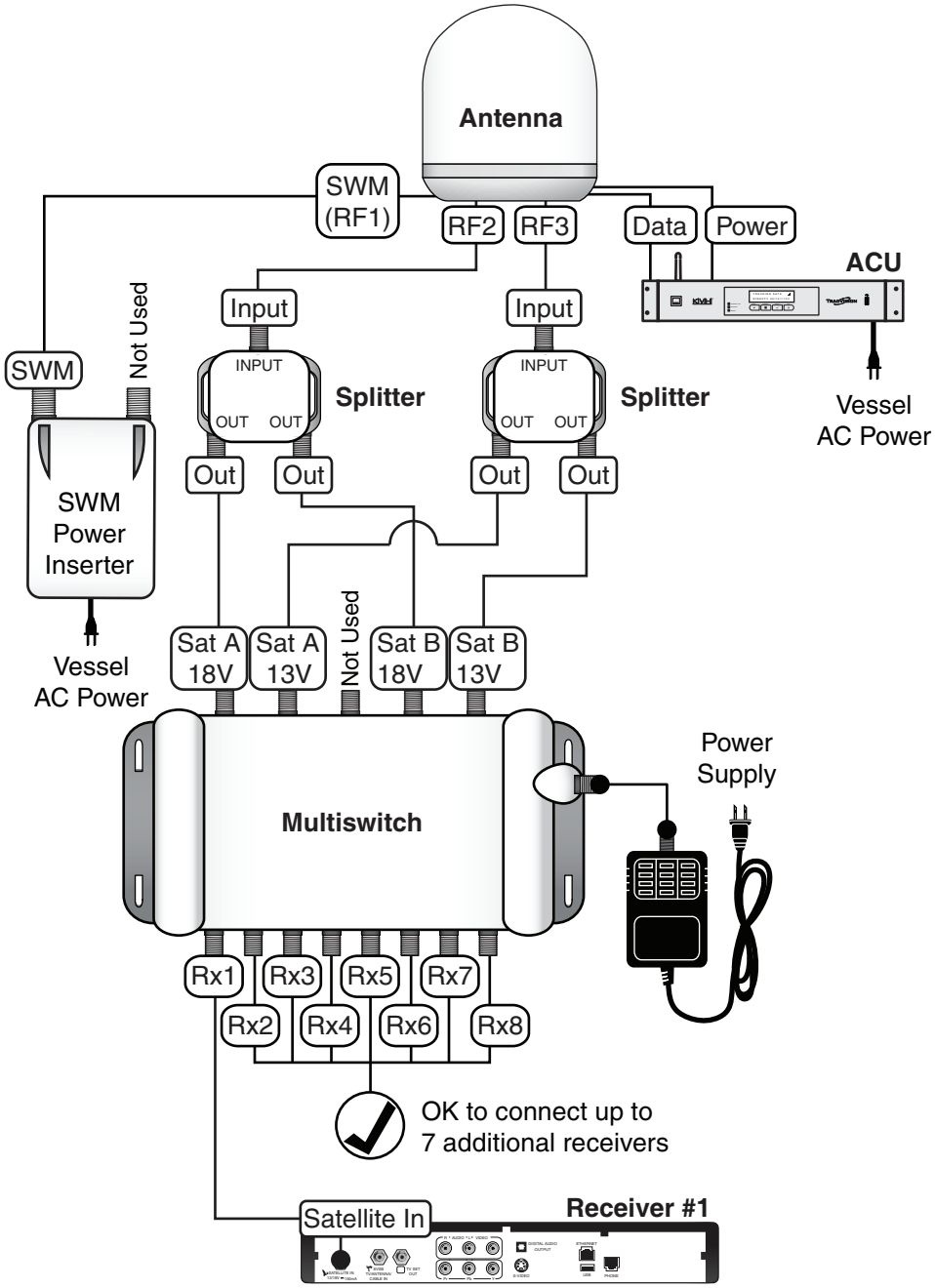
Wiring Up to 4 Non-SWM Receivers



*The supplied SWM power inserter, shown above, is required, since it supplies power to the antenna's LNB. However, this power inserter connector is not used in this configuration; it is reserved for a SWM splitter connection only.

B Continued Wiring Non-SWM Receivers

Wiring Up to 8 Non-SWM Receivers

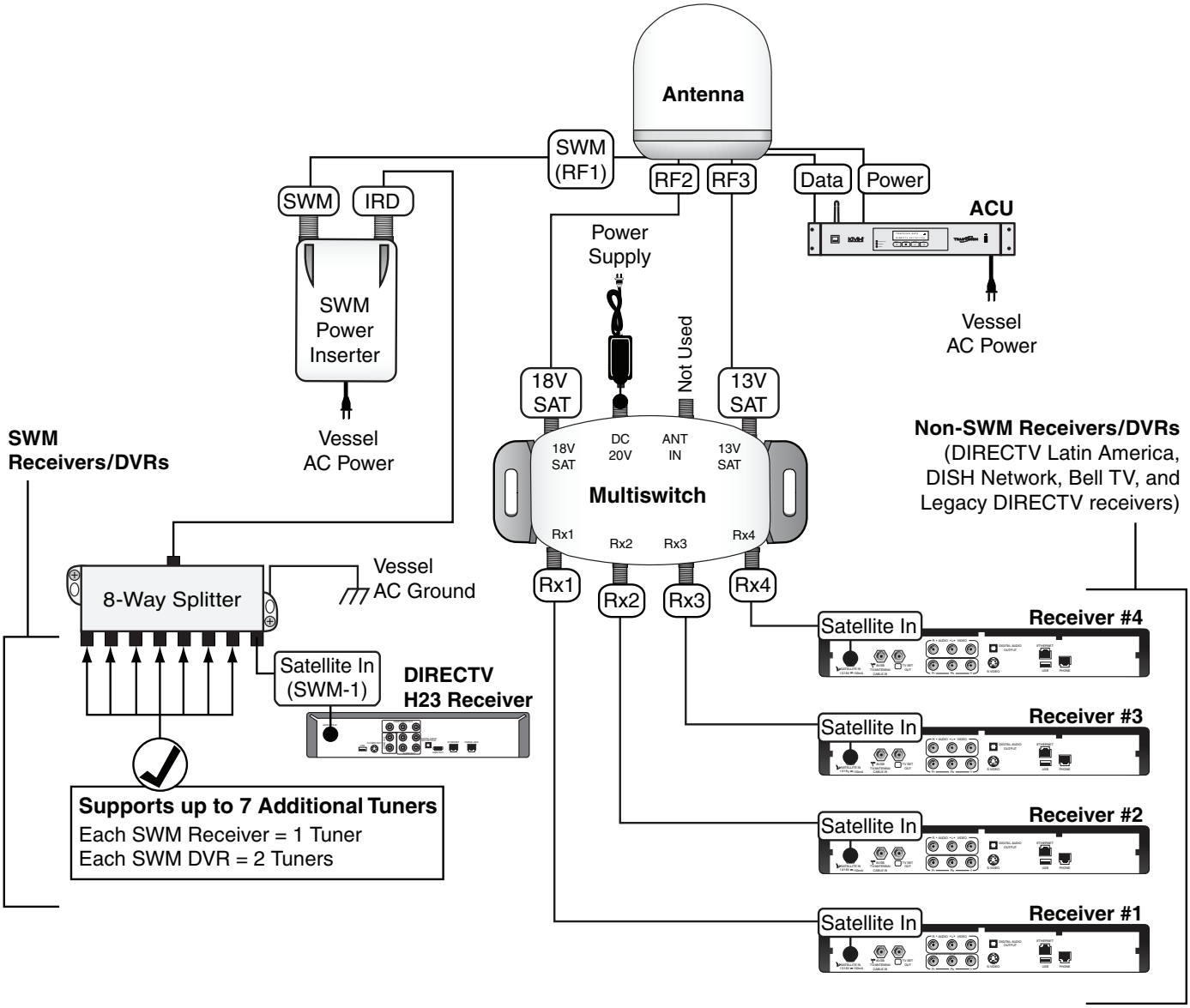


*The supplied SWM power inserter, shown above, is required, since it supplies power to the antenna's LNB. However, this power inserter connector is not used in this configuration; it is reserved for a SWM splitter connection only.

NOTE: *If desired, you can connect up to 16 receivers using this wiring diagram and a 16-output multiswitch.*

B Continued Wiring Non-SWM Receivers

Wiring SWM and Non-SWM Receivers



C Configuring Non-SWM Receivers

Follow the steps below to set up the TracVision HD7 system to use your selected satellite service, and/or configure the non-SWM receivers for use with the TracVision HD7 system.

Step 1 - Set the Desired Satellite Service

Follow these steps to set up the TracVision HD7 system for the satellite service provider of your choice.

Option A - Use the Web Interface (Recommended)

Follow the instructions below to use the web browser on your PC to select the desired satellite service provider.

a. Open your web browser. Ensure the PC is connected to the ACU's network.

b. Enter the ACU's IP address into the web browser's address bar. Then press Enter (see Figure).

c. Log in to the web interface using the username and password below (see Figure 46).

username: **admin**
password: **password**

d. Select the Settings tab. Then choose Advanced Settings (see Figure 47).

e. Select the desired satellite service provider. Then choose Change Service (see Figure 47).

Figure 45 Entering the IP Address (Example)

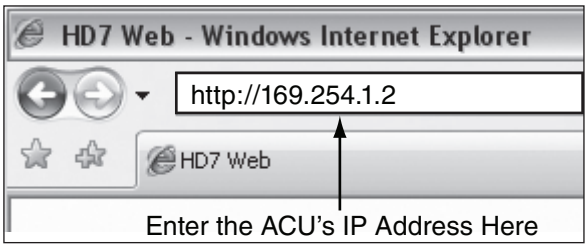


Figure 46 Web Interface Login Screen

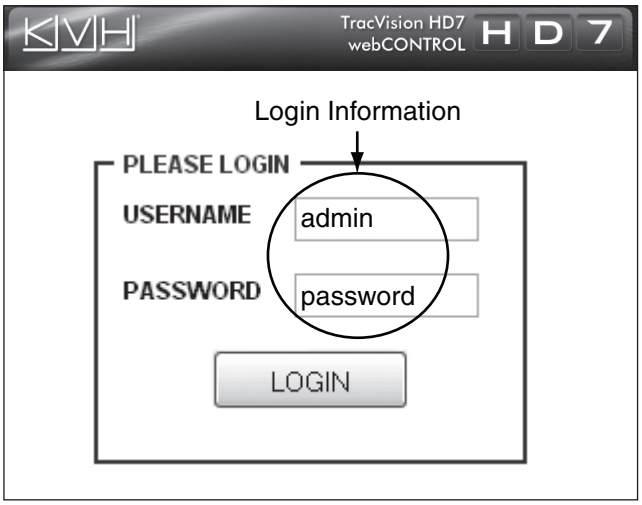
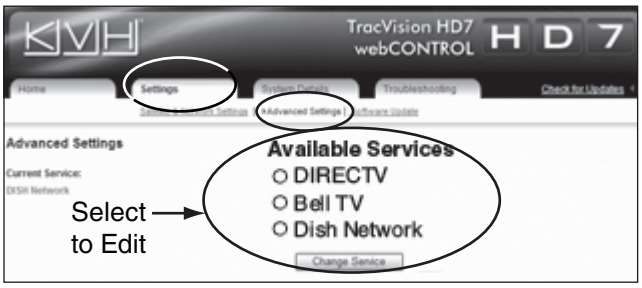


Figure 47 Advanced Settings



Option B - Use the ACU Buttons

Use the flowchart in Figure 48 to access the Change Sat Service menu on the ACU. Then select the desired satellite service provider.

Step 2 - Set Up the Receivers

Follow the steps below to configure the non-SWM receivers.

DISH Network/Bell TV Receivers

Follow the steps below to run one Check Switch test on each connected receiver.

NOTE: *Once the receivers are set up, you can switch satellites as needed using the ACU buttons, web interface, or TracVision iPhone/iPod touch app.*

a. Ensure the antenna has an unobstructed view of the sky.

b. Using the receiver's remote control (and a connected television), go to the "Point Dish/ Signal Strength" screen (press MENU, 6, 1, 1 on most receiver models).

c. Choose Check Switch, then press SELECT.

d. Choose Test (DISH Network) or Check (Bell TV), then press SELECT.

e. Wait up to 10 minutes for the test to complete and the receiver's Program Guide to load.

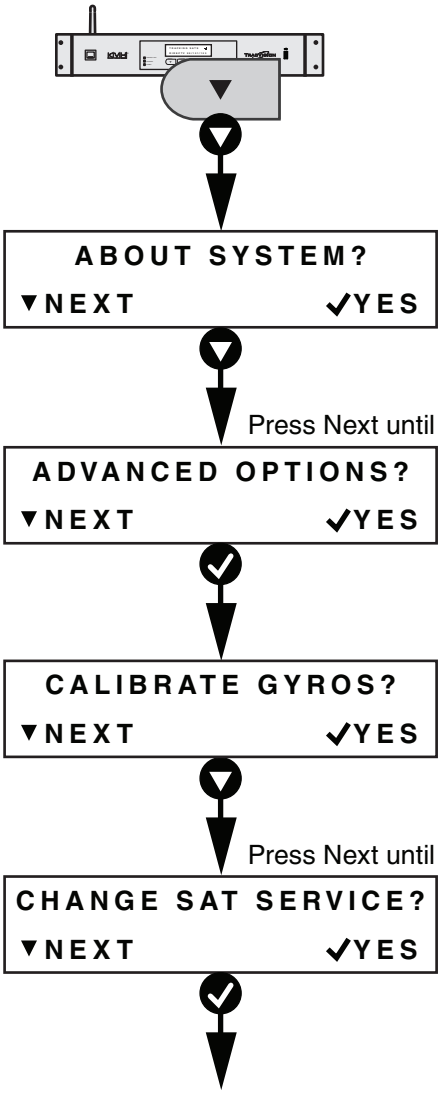
TIP: *Once complete, the Check Switch displays the current satellite, followed by "OK."*

f. Using the receiver's remote, select the Program Guide to ensure it has loaded properly.

DIRECTV Latin America/Legacy DIRECTV Receivers

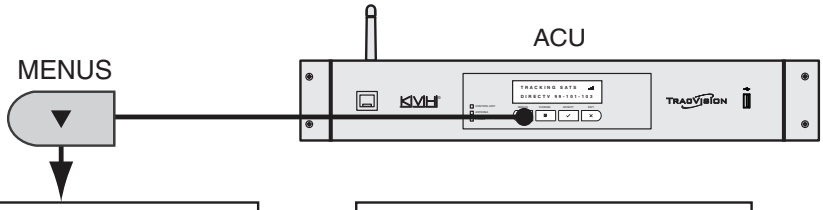
Using the receiver's remote control (and a connected television), set the "Satellite DISH Type" to "Round." If you are configuring a legacy DIRECTV receiver, be sure to also choose "Multiswitch."

Figure 48 Changing Sat Service Menu



Displays Options:
Bell TV, DIRECTV, DIRECTV Latin America, DISH Network

D ACU Menu Structure



ABOUT SYSTEM? ▾NEXT ✔YES — Next — **SYSTEM SETTINGS?** ▾NEXT ✔YES — Next — **ADVANCED OPTIONS?** ▾NEXT ✔YES

ABOUT SYSTEM?

Yes

VIEW SERIAL NUMBERS?

Next / Yes

View Serial Numbers:

- Antenna
- ACU

VIEW WI-FI SETTINGS?

Next / Yes

View WiFi Settings:

- State: Ad-hoc, Infrastructure, or Disabled
- SSID
- IP Address
- Gateway
- Subnet Mask
- Security: WEP or Disabled
- Password

VIEW ENET SETTINGS?

Next / Yes

View Ethernet Settings:

- State
- IP Address
- Gateway
- Subnet Mask

VIEW SOFTWARE INFO?

Next / Yes

View Software Versions:

- Application
- Operating System

VIEW POWER INPUT?

Yes

View Input Voltages:

- Antenna VDC
- ACU VDC

SYSTEM SETTINGS?

Yes

CHANGE SATELLITES?

Next / Yes

Select Among Satellites for the Selected Service:

- Bell TV: 82 or 91
- DIRECTV: 99-101-103 or 101
- DISH Network: 61, 77, 110, 119, or 129

WI-FI SETTINGS?

Next / Yes

Modify WiFi Settings:

- State: Ad-hoc, Infrastructure, or Disabled
- SSID
- IP Address
- Gateway
- Subnet Mask
- Security: WEP or Disabled
- Password

ETHERNET SETTINGS?

Next / Yes

Modify Ethernet Settings:

- State: DHCP, Static, or Disabled
- IP Address
- Gateway
- Subnet Mask

ADJUST BRIGHTNESS?

Yes

Modify LCD Screen Brightness: Low, Medium, or High

ADVANCED OPTIONS?

Yes

CALIBRATE GYROS?

Next / Yes

Recalibrates Antenna Gyro

UPDATE SATELLITES?

Next / Yes

Modify Satellite Parameters for a Selected Satellite/ Polarization:

- Frequency
- Symbol Rate
- FEC Code: Auto, 1-2, 3-4, 5-6, or 7-8
- Network ID

CHANGE SAT SERVICE?

Next / Yes

Set the Satellite Service Provider: Bell TV, DIRECTV, DIRECTV Latin America, or DISH Network

RESET TO DEFAULTS?

Yes

Reset to Factory Defaults:

- Satellite Parameters
- Network Settings
- Reflash System

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