
Exede Enterprise 75cm Auto Acquire Antenna

Date:	<i>9 December 2014</i>
Product(s) Affected:	<i>Exede Auto Acquire Terminals</i>
Hardware Release Affected:	<i>Exede Auto Acquire modem</i>
Summary:	<i>Instructions on how to configure and setup the Winegard antenna controller, 75cm antenna to work with the ViaSat Auto Acquire modem.</i>

Overview

The Winegard 75cm WV750A antenna is a ViaSat Inc. approved auto acquire antenna for use with Exede Enterprise Services. This antenna should be used with 2Ru Winegard antenna controller (P/N OPT1018) and ViaSat SurfBeam[®] 2 Auto Acquire modem. This application note covers proper cabling and configuration the Winegard system with the ViaSat SurfBeam 2 Auto Acquire modem.

Service Overview

The solution outlined has been tested for use with ViaSat Enterprise Service.

Exede Enterprise Hardware

ViaSat SurfBeam 2 Auto Acquire modem.

Note: Reference Appendix A for ViaSat technical bulletin on specifications for RG6 coax cable type.

Winegard Technologies Hardware

The WV750A model antenna along with the Antenna Controller Unit (ACU) from Winegard, P/N OPT1018 2Ru assembly with LCD and Push button acquire and stow. The Winegard antenna system does not come with ACU software to control the antenna and configure ACU from a computer. All configurations are done through the ACU LCD menu. Directions on how to configure the ACU for use with a ViaSat modem can be found in the terminal manual provided by Winegard.

Software/Firmware

Modem: ViaSat, Auto Acquire Modem.

- UT Software **2.2.0.2.0 < (Or Higher)**
- HWID UT_11 KATT_V1 (Only Version)
- TRIA Firmware **13.05 < (Or Higher)**
- RG 6 >**2.4GHz** in compliance with ViaSat coax type technical bulletin. (See Appendix A)

Note: To locate UT software and HWID open a Web browser (Google Chrome, Internet Explore) and type in the URL bar the modems IP address (192.168.100.1) and click the modem tab on the left side of the web page. In the **Identification** section of the modem web page you will find (Software Version) and (Hardware Version). To find TRIA Firmware Version, Click the TRIA tab on the left side of the modem web page and in the **Diagnostic** section you will find TRIA Firmware Version.

Winegard : WV750A 75cm Antenna System

- Antenna Controller Software 9.0.0.30

Consumer Off The Shelf Router (COTS Router)

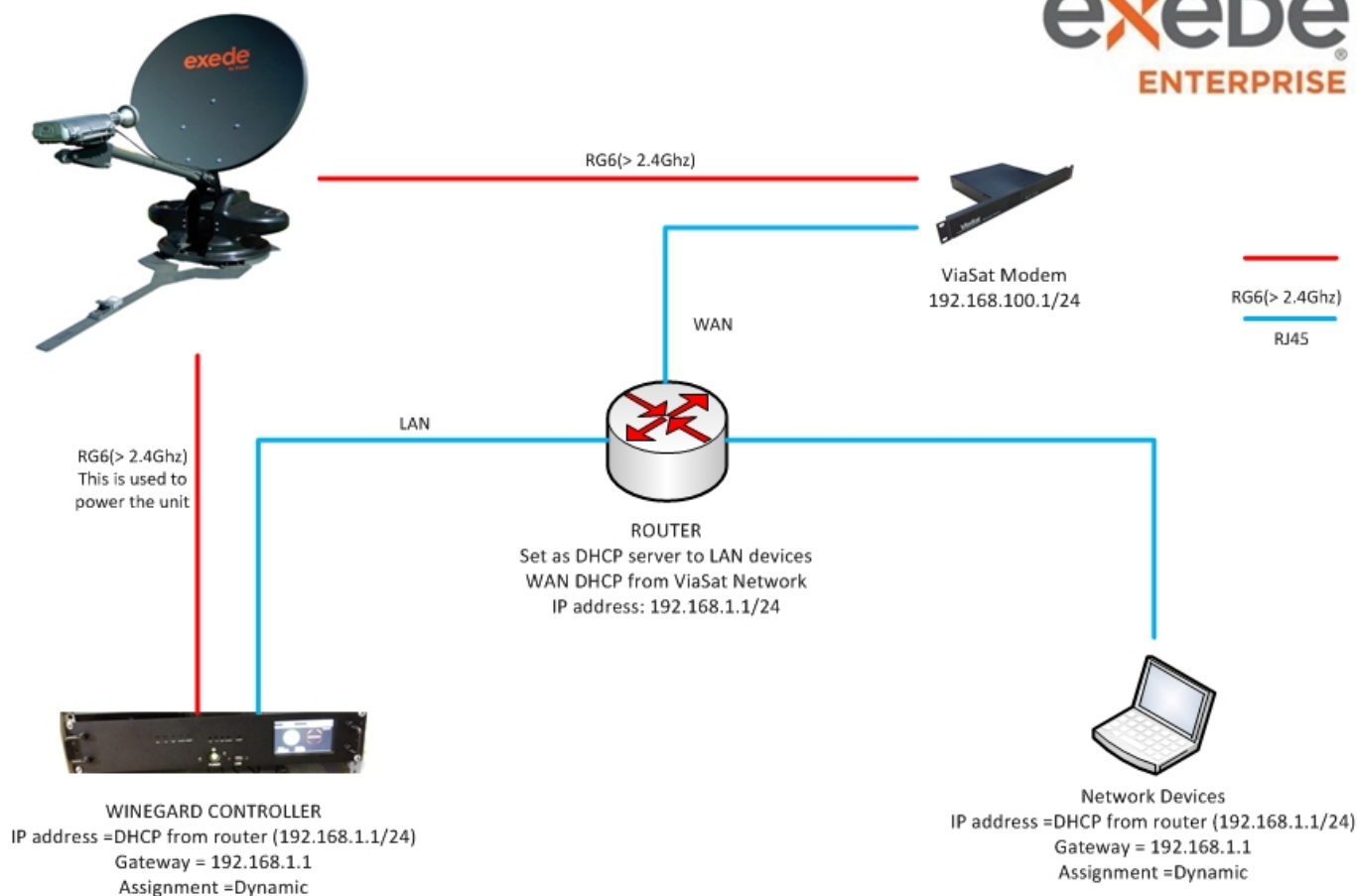
ViaSat does not currently specify a router to be used with the terminal. The main point is that there is a router between the ACU and the Modem. Networking conflicts happen if there is a switch in between the ACU and Modem. The router has to have a build in DHCP server.

Note: Some COTS routers are not compatible with ViaSat Inc. Auto Acquire modems.

Note: The router should be configured for the 192.168.1.1/24 network. Any network other than 192.168.100.1/24 network should be used on the LAN side of the router.

Configuration and Operation.

Winegard SurfBeam 2 Setup



Wiring of Surf Beam 2 Auto Acquire systems

Cabling

WV750A 75cm Antenna and ACU

1. Connect power RG6 cable from the base of the antenna to the ODU port on that back of the 2Ru Assembly
2. Connect RJ45 cable from the base of the antenna to any of the Ethernet ports on that back of the 2Ru assembly
3. Connect RG6 from the Tx port at the base of the antenna to the SurfBeam 2 modem IFL connection (NOTE: This connection is just a pass thru)

Winegard 2Ru Assembly

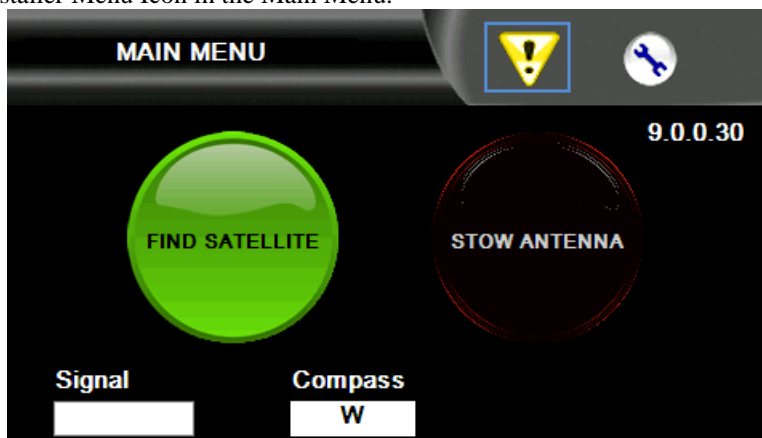
1. Connect RJ45 from any of Ethernet port on the back of the 2Ru assembly to any LAN port of the router being used
2. Connect power cable on the back of the 2RU assembly to an external power source.

Exede Auto Acquire Modem

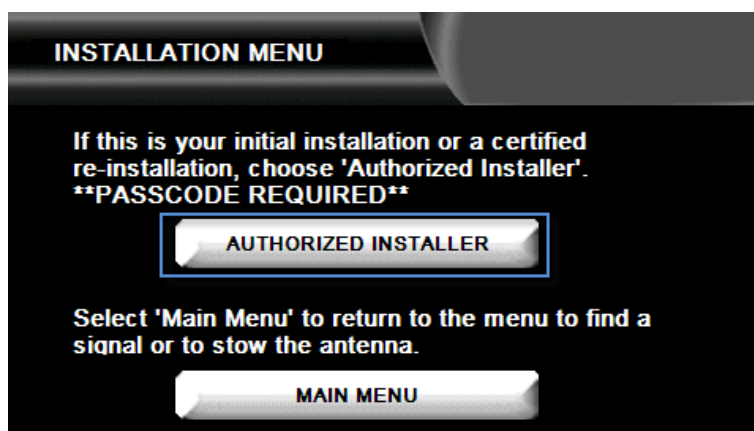
1. Connect RJ45 from the Ethernet port on the modem to the WAN port of the router being used
2. Connect modem power supply to a provided power source.

Configuring the Winegard ACU for SurfBeam2 Auto Acquire System

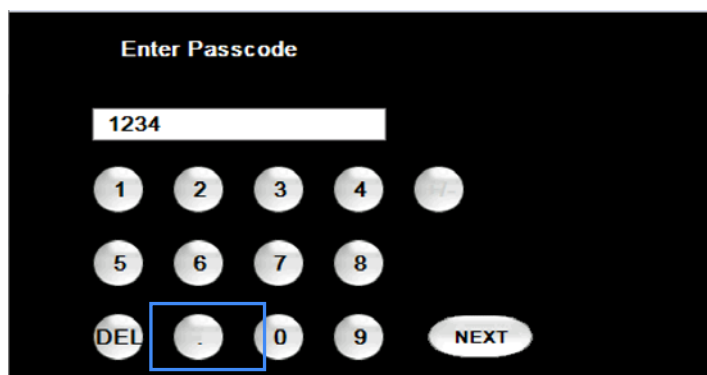
1. Tap the Authorized Installer Menu Icon in the Main Menu.



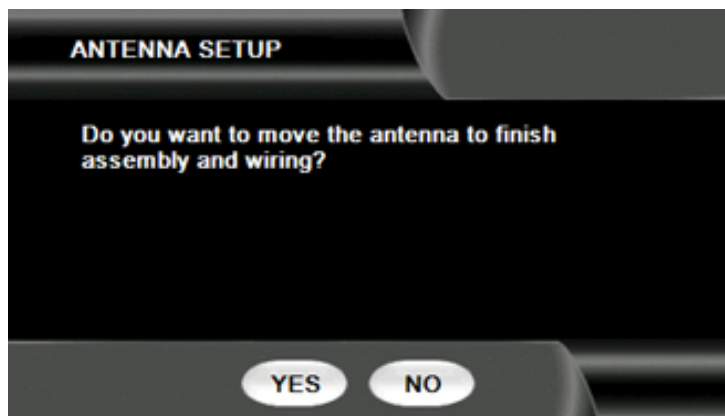
2. The controller will enter the Installation menu section. The INSTALLATION MENU screen asks if you want to select “AUTHORIZED INSTALLER” for configuration purposes or “MAIN MENU” to back out of the Installation menu.
Tap the “AUTHORIZED INSTALLER” button.



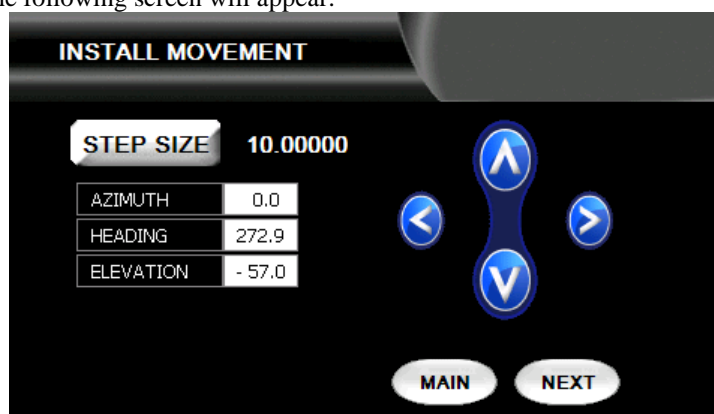
3. ENTER PASSCODE screen -
The next screen that appears is a numerical pad requesting input of the Passcode.
The Passcode is set from the factory to a default of “1234”.
If an incorrect value is entered, the DEL button will allow you to backspace one character per tap.
After entry of the pass code “1234”, press the “NEXT” button to continue the configuration.



4. ANTENNA SETUP screen -
The next screen that appears is the ANTENNA SETUP screen.
This step of the configuration asks if you want to perform movement of the antenna for installation purposes. It is not necessary to perform antenna movement to configure the controller.



- a) If you select "NO" you will be taken to the EMERGENCY screen on item 5.
- b) If you select "YES" the following screen will appear:

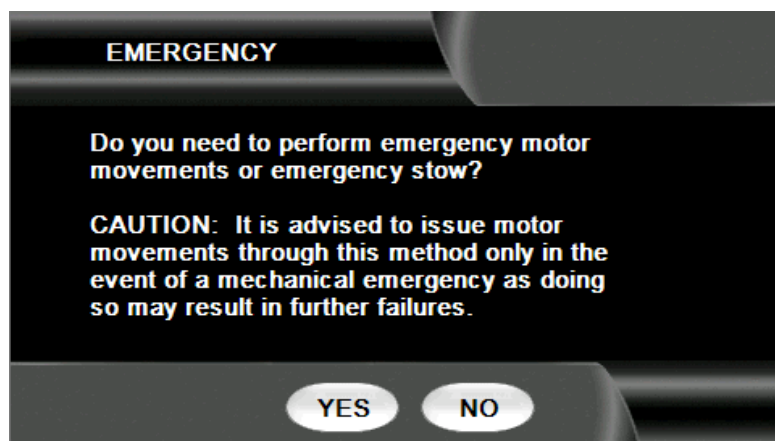


The INSTALL MOVEMENT screen allows for manual jogging of the antenna for assembly, wiring and even pointing purposes used in testing. However, if in Generic mode, please note that after movements are accomplished in this screen the only choice available is to tap on the "NEXT" button which will then require that the system is stowed.

If the system is already configured on any mode except Generic, the "MAIN" button will be available to exit the manual movement screen back to the main menu without changes to you jogging movements being nulled. The step rates available here are .1, .5, 1, 5 and 10 degrees per button selection.

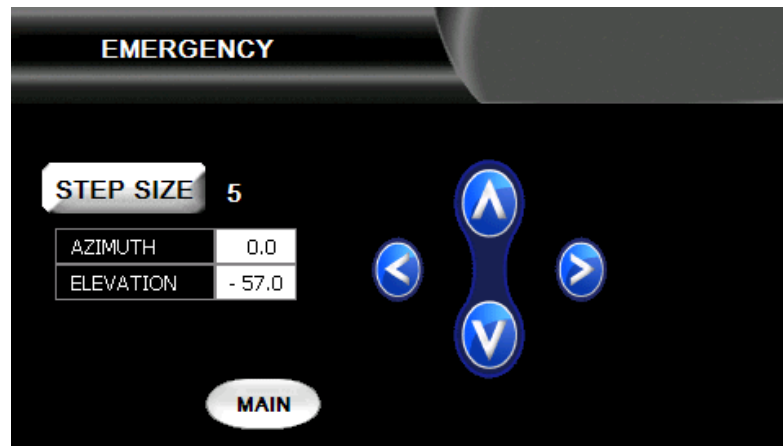
5. EMERGENCY screen -

If you have selected "NO" on the ANTENNA SETUP screen then you will move forward to the EMERGENCY movement screen. This screen asks if you want to perform emergency movement of the motors for stowing purposes. It is not necessary to perform emergency motor movement to configure the controller.



- a) If you select "NO" you will be taken to the CALIBRATION screen on item 6.

- b) If you select “YES” the following screen will appear:

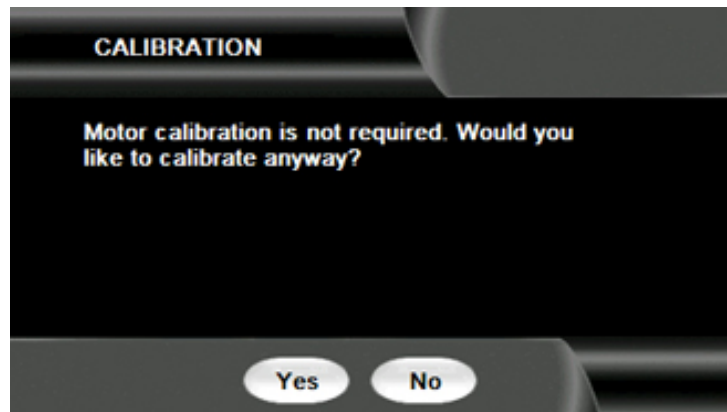


The EMERGENCY screen allows for manual movement of the antenna intended for Emergency stowing. **Warning, the system will allow unsafe movements of the Elevation motor in order to stow the system. Verify that the Antenna System is pointed in a safe azimuth position before moving the elevation motor.**

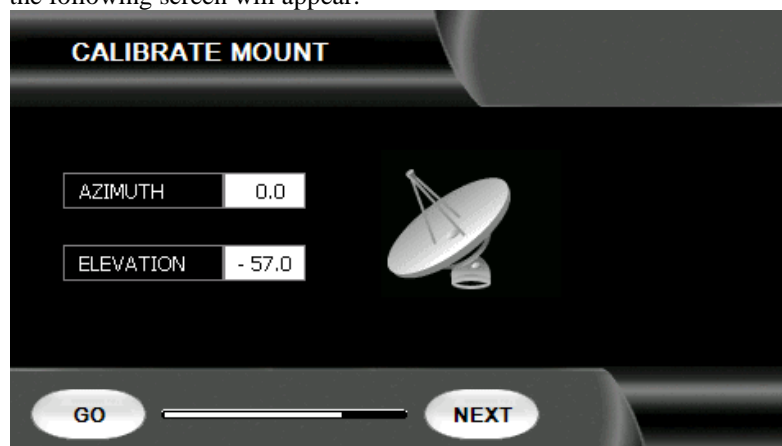
The step rates available here are 0.1, 0.5, 1, 5, 10, 25 and 45 degrees per button selection.

6. CALIBRATION screen -

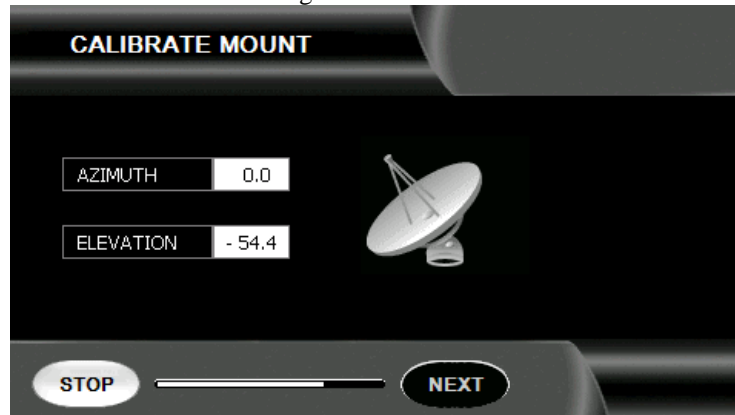
This screen should show that a calibration is not required because a calibration was performed at the factory prior to shipping.



- a) If you select “No” you will be taken to the HEADING screen on item 7.
b) If you select “Yes” the following screen will appear:

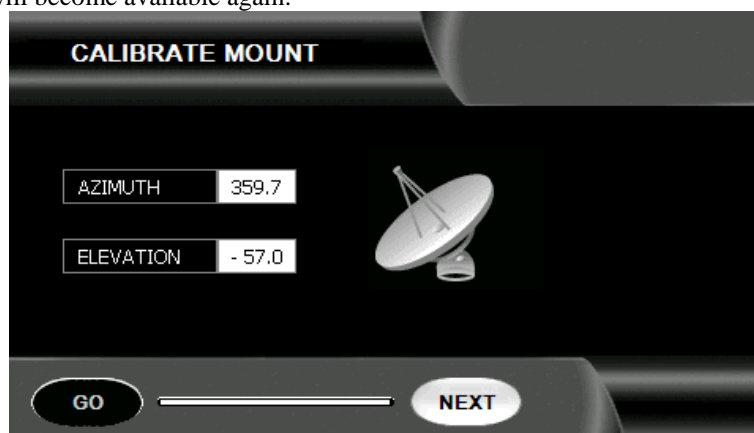


- i. If “NEXT” is selected, the controller will exit the Calibration without any movement and proceed to the next step in the configuration described on item 7.
- ii. If you select “GO” then the Calibration will begin.



The “GO” button will change to a “STOP” button and the “NEXT” button will become grayed out. The Controller will tell the ODU to move the antenna motors in all axis sequentially, first elevation, then azimuth before stowing the antenna.

- iii. Once both motors have been processed thru the calibration, the “NEXT” button will become available again.

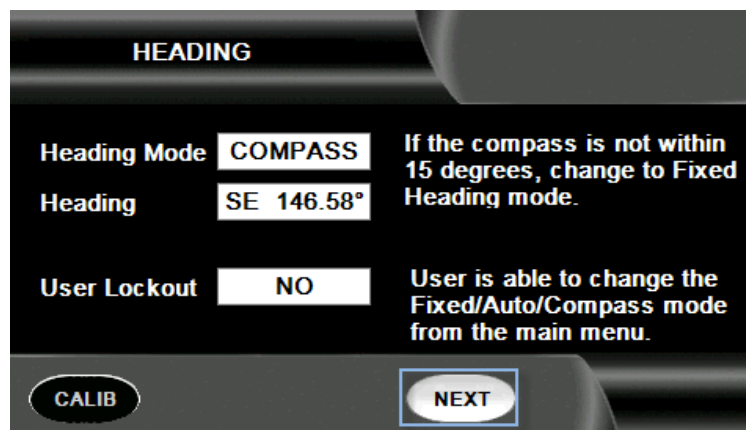


If this happens then the system completed a successful calibration. Tapping the “NEXT” button will move the configuration to the next step on item 7.

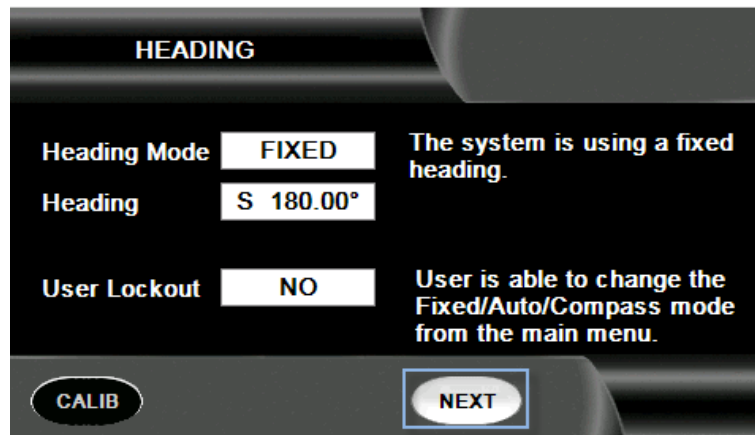
7. HEADING screen -

After the CALIBRATION screen the system continues to the HEADING screen.

- a) The WV750A Antenna System’s Heading Mode should be in Compass mode. This is the factory default setting. At this time select “NEXT” to go to step 8.



- b) If the system is in Fixed Mode it can be changed back to Compass Mode by touching the Compass button on the touch screen. **Warning, using the WV750A Antenna System in fixed mode will significantly increase acquisition time.**

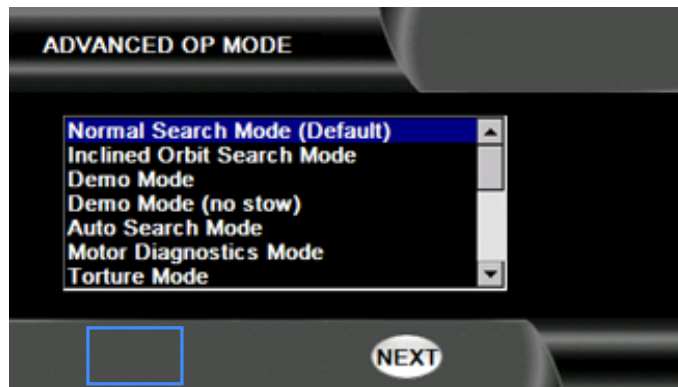


8. After completing the Compass Heading screen on the previous page, the controller will advance to the ADVANCED OP MODE screen. In this screen there is only one mode supported for field deployment, Normal Search Mode.

Normal Search Mode (Defaults) -

As the name implies, Normal Search Mode is the factory default setting.

If the "Normal Search Mode" is not highlighted select it and press the "NEXT" button to advance to the MODEM SELECTION screen.



9. NETWORK SETUP screen -

At the top of the NETWORK SETUP screen the header section details if the Network Adapter is currently in DHCP or STATIC mode.

NETWORK SETUP - STATIC		
IP Address	192.168.1.105	
Subnet Mask	255.255.255.0	
Default Gateway	192.168.1.1	PING
Modem IP Address	000.000.000.000	PING
DNS Servers	192.168.1.1	
Physical Address	00:17:1A:00:00:06	

DHCP NEXT

The Network Adapter can be placed in either DHCP or STATIC mode. Network parameters such as IP, Mask, Gateway and DNS address are available when the system is in STATIC mode.

The button at the bottom left hand corner of the screen is basically a toggle switch which changes the Network Adapter from DHCP to STATIC, or vice versa.

DHCP -

- If the modem, with which the controller is being configured, has DHCP enabled then ensure first that the display at the top of this screen states NETWORK SETUP - DHCP. If not, then tap on the “DHCP” button on the bottom left hand corner of the screen.
- IP, Mask, Gateway and DNS information being distributed by the modem should populate the main screen after a few seconds.
- Once DHCP data is present and verified, proceed to step 10.

STATIC -

- If the modem, with which this controller is being configured, does not have DHCP enabled then ensure first that the display at the top of this screen states NETWORK SETUP - STATIC. If not, then tap on the “STATIC” button on the bottom left hand corner of the screen.
- After the Network Adapter is changed to Static mode, IP data can be entered by tapping on each line of information at a time.
- After the tap a numeric pad screen will appear allowing entry of the IP information with a NEXT button available to exit out of the numeric pad for each entry.
- If an incorrect value is entered, the DEL button will backspace one character per tap.

IP Address

[Text Input Field]

1 2 3 4 []

5 6 7 8 CANCEL

DEL [] 0 9 NEXT

Once all network configuration information has been entered and verified, tap on the “MAIN MENU” button at the bottom of the NETWORK SETUP screen to exit to the main menu. If changes have been made you will need to select “YES” to verify that changes have been made.

NETWORK SETUP - STATIC		
IP Address	192.168.1.105	
Subnet Mask	255.255.255.0	
Default Gateway	192.168.1.1	PING
Modem IP Address	000.000.000.000	PING
DNS Servers	192.168.1.1	
Physical Address	00:17:1A:00:00:06	
<div style="display: flex; justify-content: space-around;"> DHCP NEXT </div>		

WARNING

Network settings have been changed. Would you like to keep these changes?

NO
YES

10. The MODEM SELECTION screen allows one selection to interface with a Viasat Ka modem. Generic mode should only be selected for troubleshooting by certified technicians.

MODEM SELECTION

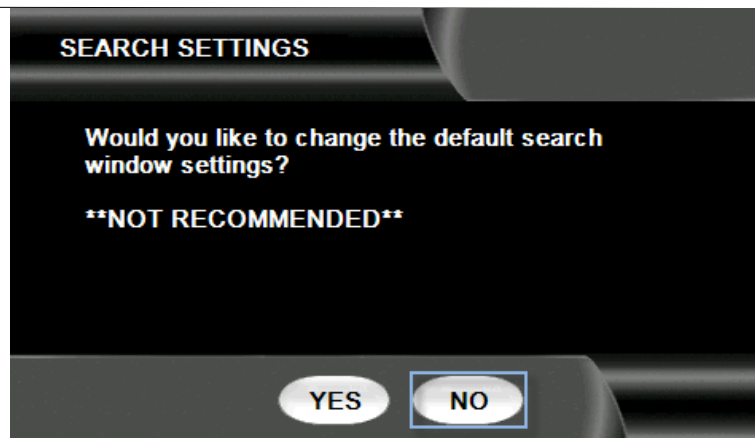
Generic

Viasat Ka Exede

NEXT

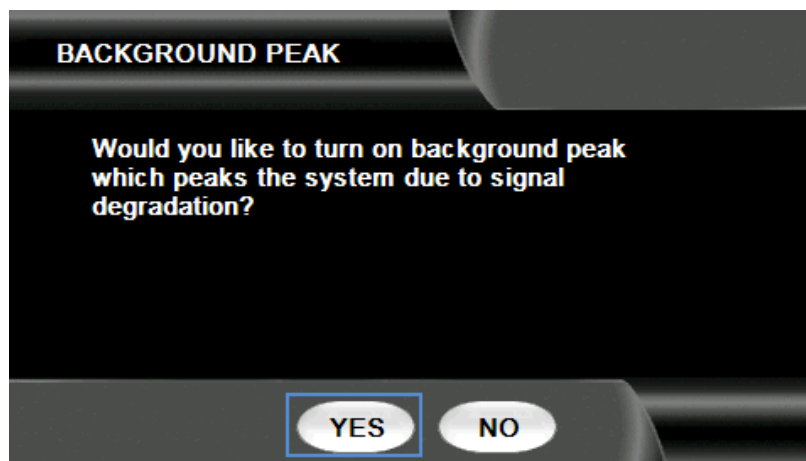
The SEARCH SETTINGS screen asks if you would like to make changes to the default Search Window settings. Changing the default search window will negatively impact acquisition time and should not be changed. The default settings are:

- Window Width = 5 Deg
- Window Height = 6 Deg
- Elevation Spacing = .5 Deg
- Azimuth Speed = 5 Deg per second
- Select “No” to continue the configuration.



- a. The BACKGROUND PEAK screen asks if you would like to turn on BACKGROUND PEAK. BACKGROUND PEAK is off by default from the factory.

Warning, background peak should only be turned on by an authorized factory technician.



- b. After selecting “Yes” at the BACKGROUND PEAK screen, you will get the following screen which allows you to CHANGE peaking values, STOP the auto peaking process or continue without changes by pressing “OK”. Remember that BACKGROUND PEAKING was originally disabled and pressing YES on the previous screen enabled it so the “OK” button here merely continues with the configuration with Background Peaking enabled.

NOTE: BACKGROUND PEAK DOES NOT TURN OFF THE TRANSMITTER.

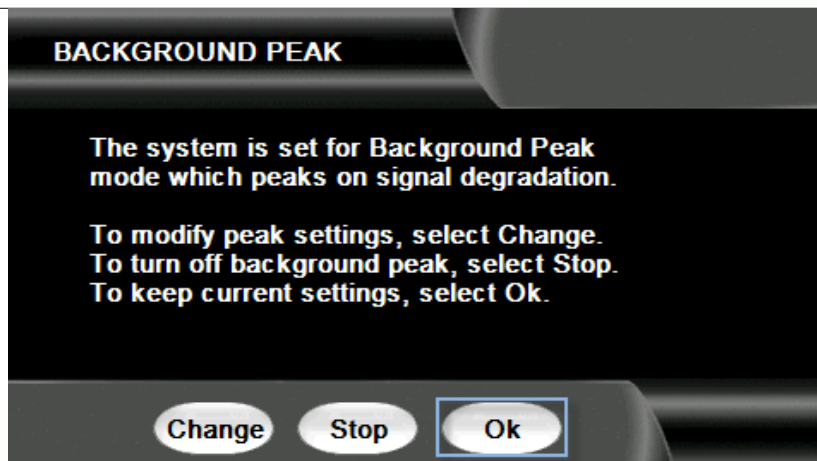
The goal of Background Peaking is to examine the SNR and pitch and roll changes over time and adjust the antenna pointing to ensure optimal signal at all times.

Because we do not want to take the system offline to peak the antenna, the peaking values allow you to set maximum movement of the antenna, maximum speeds and maximum current therefore keeping the peaking process within a window that will not adversely affect adjacent satellites.

The default Background Peak values are:

Interval =	60 minutes
SNR Threshold =	0.5 dB
Axis Movement =	AZ 0.3, 2.0, 0.5
	EL 0.3, 1.2

Due to the condensed nature of this manual, do not make changes to the Background Peak values at this time. Select “Ok” here to continue with the configuration.

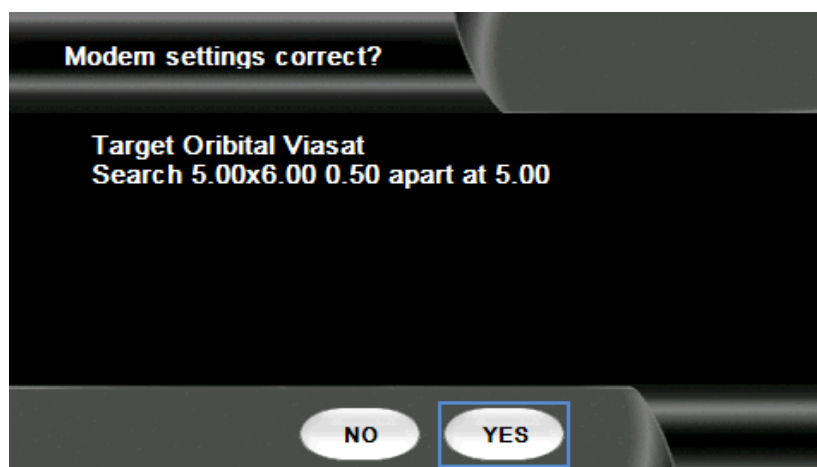


The MODEM SETTINGS screen will allow one final review of the settings for this Viasat Ka Exede modem search. Selecting “YES” here will write the configuration selections to the configuration memory and return the system back to the Main Screen.

The Find Satellite button will be available if the system is in the stowed position and ready for deployment. Selecting “NO” here will bring up a screen stating that Satellite configuration has been cancelled.

The only option after selecting no is to press “OK” which will return the controller to the INSTALLATION MENU on page 17.

Even though the configuration will not be written to persistent memory, the selections made on the previous configuration will be retained making configuration selection easier if one selects “NO” by mistake.



11. Final configuration notes -

The controller is now configured to work with the Viasat Ka Exede modem selected for this install.

Support Information.

Winegard Customer Support

Typical telephone support (Monday - Friday 8am - 5pm EST): 877-704-1112
support@winegard.com

In the case the user experiences any problems with their Exede service they should contact the ViaSat Network Operations Center by telephone at 1-866-656-6623 or by email at ExedeEnterpriseSupport@viasat.com.

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001	5 December 2014	Initial Release

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