

ADL450B RADIO

RADIO

Antenna cable



LEMO connector
to receiver

Power cable to
battery



CAUTION - Before operating this product, please read the safety warnings and general information in the *ADL450B User Guide*.

SAFETY

For all safety notices, please refer to the *ADL450B User Guide*.

INSTALLING ANTENNAS

WARNING – To ensure optimal radio performance and that exposure to RF energy is within the guidelines for RF exposure (as described in the *ADL450B User Guide*), observe the following operating procedures:

- Do not operate the transceiver unless all RF connectors are secure and any open connectors are properly terminated.
- Avoid contact with the antenna while operating the transceiver.
- Do not operate the transceiver with a damaged antenna. If a damaged antenna comes in contact with the skin, a minor burn may result.
- Do not operate the equipment near electrical blasting caps or in an explosive atmosphere.
- Antennas are excellent conductors of electricity, so use extreme caution when operating near power lines and other sources of electrical current or during stormy weather. If an antenna is installed in a location exposed to lightning, Spectra Geospatial recommends inserting a lightning surge protector in between the antenna and the radio. Secure the antenna properly in outdoor environments to account for people passing by, wind, or moving vehicles.

WARNING – The radio and its cabling should be installed in accordance with all national and local electrical codes, regulations, and practices. The radio and cabling should be installed where they will not become energized as a result of falling nearby power lines, nor be mounted where they are subjected to over-voltage transients, particularly lightning. Such installations require additional protective means that are detailed in national and local electrical codes.

EXPOSURE TO HOT SURFACES

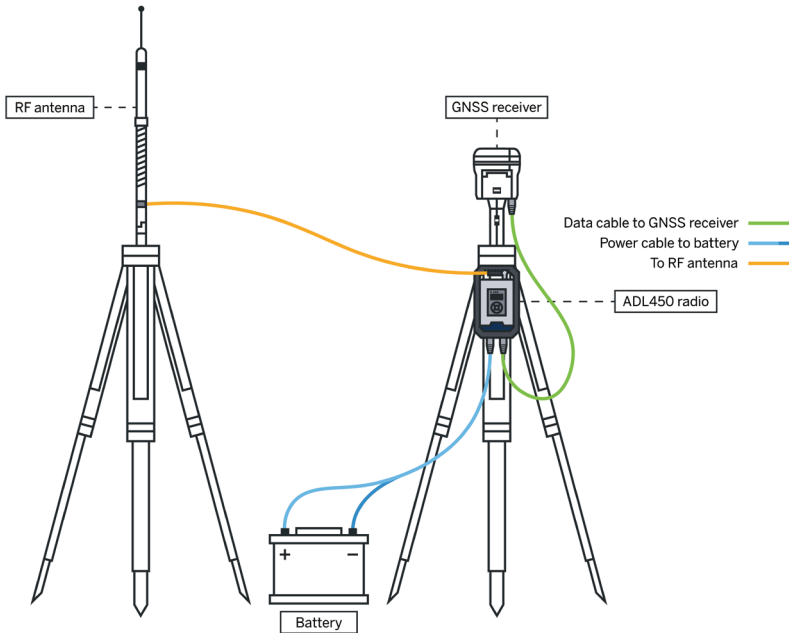
The ADL450B enclosure and heat sink may become very hot during operation, depending on the air temperature, transmit power, and transmission duty cycle. Turn off the unit and let it cool before handling. Always use the heat resistant handle to hold or move the radio.

WARNING – Touching the heat sink with your skin may result in light burns when the radio is working in high air temperature or low ventilation with transmission power and duty cycle at set high levels.

LEDS

LED	Color	Description
PWR	Continuous RED	Correct voltage applied to radio, radio off
	Continuous GREEN	Correct voltage applied to radio, radio on
	Blinking RED	Unacknowledged alarm
	Blinking Blue	Waiting for a Bluetooth device to connect
	Continuous Blue	Bluetooth connected
Tx		Transmitting when lit
Rx		Receiving when lit

SET UP IN THE FIELD



EQUIPMENT

- An ADL450B radio.
- A power cable (ADL450B power cable P/N 130919).
- An 11 V to 30 V power source with an SAE connector protected by a 20 A fuse.
- The GNSS receiver will be powered by the radio when connected with one of the data cables: P/N 130918 or P/N 130916. The voltage is typically 12.8 V and the maximum current is 4 A.
- A tripod or any other appropriate antenna support.
- An antenna adapted to the frequency on which you wish to operate with the appropriate cable terminated by a TNC connector. Spectra Geospatial offers a range of antennas, antenna masts, and accessories; please contact your Spectra Geospatial dealer.

INSTALLATION

1. Secure the antenna to its support. See the **Safety Notices** section.
2. Secure the radio on the tripod with the hook (P/N 129681-80). This part can be purchased separately.
3. In hot ambient temperatures, Spectra Geospatial recommends using the fan tray (P/N 129681-20) to help dissipate the heat from the radio heat sink.

NOTES –

- The ADL450B fan tray (P/N 129681-20) is equipped with two fans. Their purpose is to extend the temperature in which the radio can work at full power and high-duty cycle. Using the fans is optional. If you want to use them, connect the 5-pin connector on the wall mount cable to the radio data port and connect the data cable from the GNSS receiver to the wall mount connector. This will activate the fans as soon as the radio is powered on. The wall mount is not IP67 and does not have the durability that you will enjoy with the radio. Please install appropriately.
 - Spectra Geospatial recommends grounding the radio using the grounding tapered hole on the heat sink.
4. Secure the antenna cable to the radio.

NOTE – TNC connectors are the ideal option to secure coaxial RF cables on the field. The TNC connectors are nevertheless designed for permanent connections and will degrade quickly if misused repeatedly. Spectra Geospatial recommends using a TNC-to-TNC adapter if the antenna or cable are planned to be repeatedly connected/disconnected.

5. Connect the power cable to the battery SAE connector and to the radio 2-pin power connector. If the **Auto Power On** option is enabled, this will start the radio. For longer use time, you may couple two batteries together using the SAE splitter cord (P/N 89073-00-GEO). Spectra Geospatial does not recommend coupling more than two batteries in this way. Always check that your power cable or power source has a 20 A fuse.

NOTE – Always connect the radio to your input power source when all other cables are connected. The radio shows the input voltage on the display when it is turned on. If the input voltage falls below 11.5 V during operation, please check the battery, the cables, and the connectors. Dirt, corrosion, or wear has a significant effect on voltage loss in cables.

6. If you plan not to use the Bluetooth connectivity, connect the selected data cable to the radio and the GNSS receiver.
7. Ensure all cables including from the antenna to the radio are protected from any potential damage or accidental disconnection. On each setup, check the health of the battery and power cable.
8. Power the radio using the on/off button if the **Auto Power On** option is disabled.
9. The display will give you the radio status and settings. If you want to use the radio interface to configure the radio, refer to the *ADL450B User Guide*.
10. Once you have finished using the radio, ensure that you turn it off before you unplug it.

KEYPAD

Navigate through the display menus by pressing ▲ and ▼.

Press **OK** to enter the line you are on.

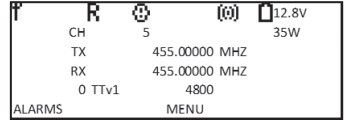
Press ↵ to return one level above the current level.

On the display, the first character on each line (▶ or >) will tell you if the item is for information only or a setting you can change by pressing **OK**.



DISPLAY

The top row displays (depending on the radio status) a series of icons as well as the input voltage.



Unacknowledged alarms in the alarm list



Remote control mode



Repeater mode



Battery charge information

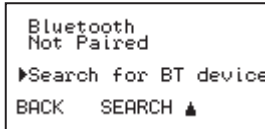
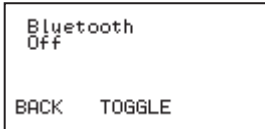


Receive only mode

USING BLUETOOTH

The radio features a Bluetooth server and client mode. You can either connect to any visible Bluetooth device or be visible so that another Bluetooth device can connect to the radio.

To open the Bluetooth menu, press ▼ until the Bluetooth menu is highlighted, and then press **OK**. The display shows one of the following screens:



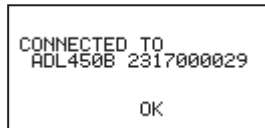
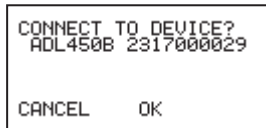
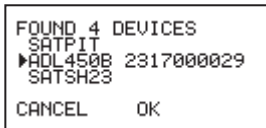
Press **OK** to move between the screens.

When the display shows that the radio is visible as ADL450B xxxxxxxxxxxx (serial number), you can pair to the radio through the other Bluetooth device by connecting to the ADL450B serial number. If you exit the Bluetooth menu, the radio is no longer visible to other Bluetooth devices.

When displaying the message **Connected to** or **Not Paired**, you can select the **Search for BT device** option to get a list of all visible Bluetooth devices you can connect to. Select the device in the list to initiate the Bluetooth connection.

LOOKING FOR DEVICES...

CONNECTED TO Device Name



MENUS

The radio interface can be set to Simplified or Expert modes. The Simplified mode gives you access to the most used information and settings. To switch modes, select **Device Settings / UI level**. Menus in the Simplified mode are shown below in bold.

RADIO STATUS MENU

RSSI | **Antenna Quality** | Estimated VSWR not measured! | **Duty cycle** | **Voltage** | **Temperature** | Region Code | CSMA | Max TX power | Call sign ID | Channel Spacing.

WIRELESS SETTINGS MENU

Radio mode | **Frequency table Tx** | **Frequency table Rx** | **Current Channel** | **Wireless Mode** | **Tx Power** | Auto Rover 1 | Auto Rover 2 | AR Listen Time | Auto TX | Legacy protocol name | Channel bw (bandwidth) | Modulation | Air link speed FEC (Forward Error Correction) | Error Checking | Whitening | CSMA.

BLUETOOTH MENU

No submenus.

DEVICE SETTINGS MENU

UI level | **Serial port settings** | Owner name | Serial Number | Firmware version | HW version information | Bluetooth name | Auto Power On | **Voltage** | Operating mode | Min voltage 1 | Min voltage 2 | Max voltage | **Display brightness** | Display timeout | **Alarm list** | Remote Control.

SETTINGS PROFILES MENU

Save to profile | **Load from profile** | **Delete profile**.

