



# Hi-Z USB Wireless

## Introduction/Welcome

Thank you for selecting the Hi-Z Antennas USB Wireless system. The Hi-Z USB Wireless system provides control functions from a personal computer to operate a Hi-Z Antenna Array.

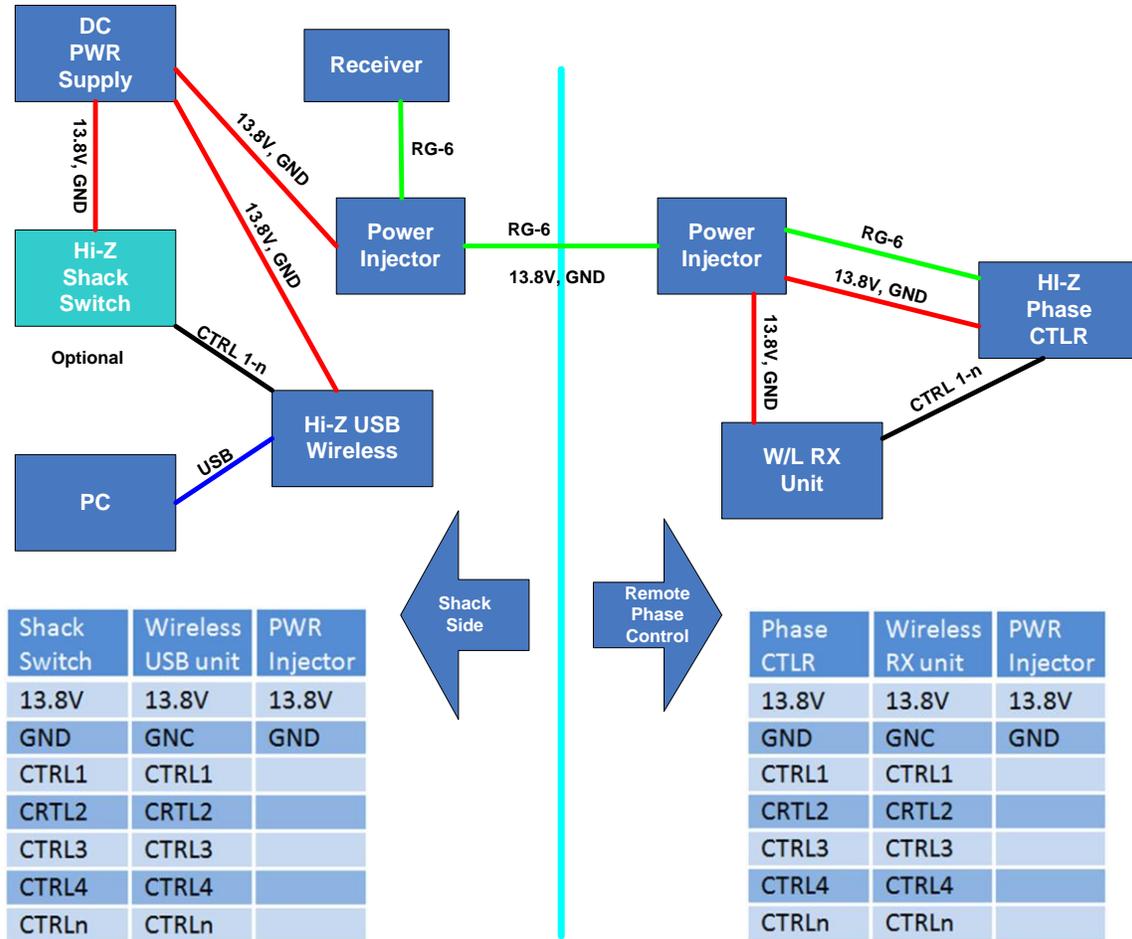
The Hi-Z USB Wireless system consists of an application that runs on any PC running Windows XP or later, and a USB interface from the PC that connects to and controls a Hi-Z USB Wireless controller. The Hi-Z USB Wireless controller communicates wirelessly to a Hi-Z RX unit. The outputs of the Hi-Z RX unit controls the Hi-Z Antenna Array direction.

The Hi-Z USB Wireless controller has the same functionality as the Hi-Z Wireless Remote Switch Control Set, plus the added ability to control a Hi-Z Antenna Array directly from a PC. A switch on the Hi-Z USB Wireless controller enables it to function the same as the Hi-Z TX unit or to be directly controlled by a PC. This manual covers the additional functionality when controlling the wireless system by a PC.

As an added feature, unused output circuits on the Hi-Z RX unit can be used to control additional devices at the antenna array. Such as, controlling AM Broadcast Band rejection filters.

This system is perfect for a remote desk top application.

# Hi-Z Wireless Block Diagram featuring Hi-Z USB Wireless & Hi-Z RX





## Installing the software

After you have downloaded the Hi-Z USB Wireless install software from the “hizantennas.com” web site, click on the setup executable to start the installation process. You will need Administrator privileges to install the software. The software installs by default on the C: drive of your PC. The setup executable will create the necessary directories to install the product. A startup icon will be created on the desktop. Entries will be created in the start menu for starting and uninstalling the application.

The USB communication interface between your PC and the Hi-Z USB controller require a software driver developed by Future Technology Devices International Ltd (FTDI). Generally in Windows 7 or later this driver is provided by Microsoft and automatically installed by the operating systems when the Hi-Z USB device is plugged into your PC. If the FTDI USB driver is not provided by your operating system. You will find the necessary files on your PC after installing the Hi-Z USB Wireless application. On your PC browse to the “Hi-Z USB Wireless > FTDI Drivers” folder. Here you will find the necessary files to install the FTDI Drivers. Or, you can use this link for the latest FTDI drivers, <http://www.ftdichip.com/FTDrivers.htm>.

When downloading and installing USB drivers make, sure you select the “VCP Drivers”. After installing the USB drivers, the USB device appears as an additional serial COM port on your PC. The Hi-Z USB Wireless application accesses the USB device in the same way as it access a standard serial COM port.

## Connecting the Equipment

On the front panel of the Hi-Z USB Wireless controller, put the USB / Ext switch in the USB position.

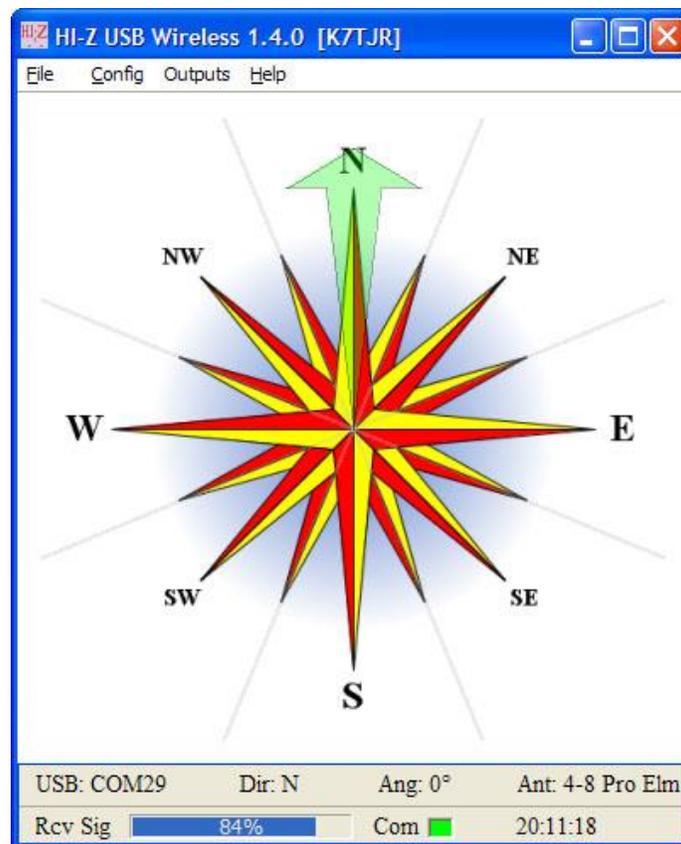
When you connect the Hi-Z USB Wireless controller to the USB port on the PC, Windows will load the required FTDI drivers. A new COM port is created that allows the Hi-Z Wireless application to communicate with the Hi-Z USB Wireless controller. Use the Windows Device Manager to view the new COM port, by selecting “Start > Control Panel > System > Device Manager > Ports”. Please note the name of the new USB Serial Port. You will need this information when configuring the Hi-Z USB Wireless application. On the front panel of the Hi-Z USB Wireless controller, the Red LED indicates the controller has power.

## Starting the Hi-Z USB Wireless application

When the Hi-Z USB Wireless application is installed, the installer created a startup icon on the PC desktop and it makes an application start entry in the start menu list. The startup icon on the desktop looks like this. You can click on the Icon to start the application.



To start the Hi-Z Wireless application from the start menu, select “start > All Programs > Hi-Z Wireless > Hi-Z USB Wireless”. Below is the startup screen of the Hi-Z USB Wireless application.



Hi-Z USB Wireless application

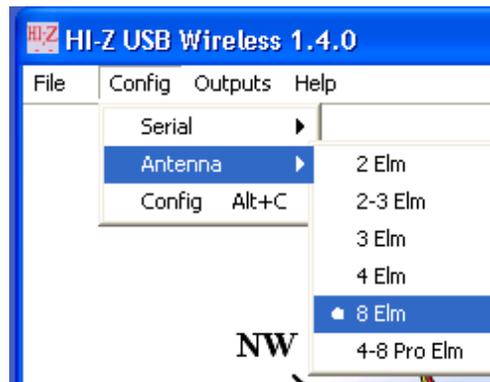
## Configuration

**Configuring the serial communication:** From the Hi-Z USB Wireless application menu bar, select “Config > Serial”. Here you see a list of serial communication ports. Click on the appropriate COM port connected to the Hi-Z USB Wireless controller. If properly connected you will see the selected USB: COM port displayed in the status panel at the bottom of the application screen. The transmit and receive COM LEDs on the Hi-Z USB Wireless controller will start flashing, indicating the application is communicating with the controller.



COM Port selection

**Configuring the Antenna Type:** From the application menu bar select “Config > Antenna”. Click on the antenna type connected to the Hi-Z Wireless system. At the bottom of the screen in the status panel, the currently select antenna type is shown.

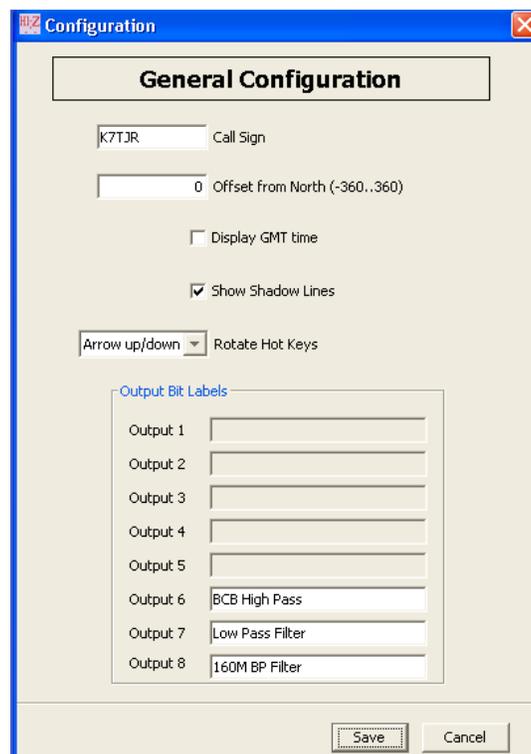


Antenna configuration

After configuring the serial communication and the antenna type, you are ready to operate the Hi-Z USB Wireless system.

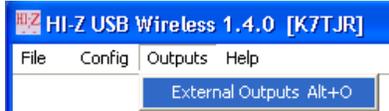
**General Configuration:** These are optional parameters not required to operate the Hi-Z Wireless system. From the application menu bar select “Config > Config”.

- **Call Sign:** Enter your call sign. You will now see your call sign displayed in the program title banner.
- **Offset from North:** If the north orientation of your Hi-Z Antenna array is not exactly correct, use this parameter to correct for north orientation. Correction for north is in +/- degrees.
- **Display GMT time:** Select local/GMT time to be displayed in the status panel.
- **Show Shadow Lines:** Add/remove shadow lines to the compass graphical display. Shadow Lines may visually aid in the antenna direction selection.
- **Rotate Hot Keys:** This dropdown box aids in selecting hot keys for clockwise or counter clockwise antenna rotation.
- **Output Bit Labels:** Unused outputs on the RX Wireless controller can be used to control auxiliary devices at the antenna array. In this panel you can assign labels (names) to these output bits. These labels are displayed in the “External Outputs” dialog and are used to control the external outputs.

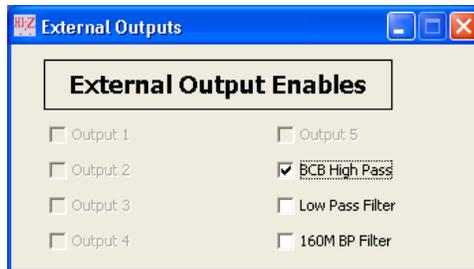


General Configuration

**External Outputs:** From the application menu bar select “Outputs > External Outputs”. Using the check boxes this dialog enable/disable the unused outputs at the RX Wireless controller.



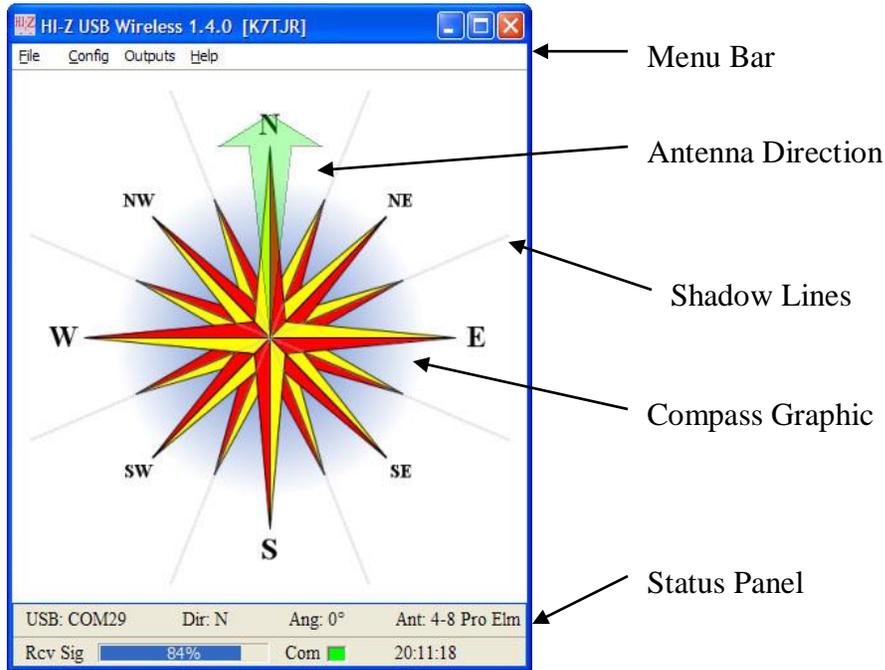
Selecting the External Outputs dialog



External Output dialog

# Operating

When you start the Hi-Z USB Wireless application you see the following screen.



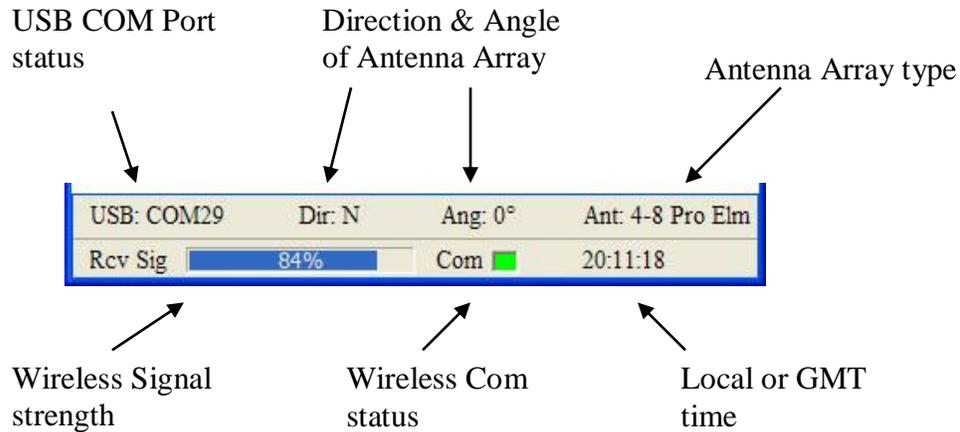
The Compass Graphic provides a visual display showing a geographic alignment of the antenna array. The large green arrow depicts the Antenna Direction. That is the direction the antenna array is configured for maximum forward gain. Depending on the antenna array configuration type, the shadow lines will depict the relative boundaries of the antenna array direction. The Status Panel at the bottom of the screen displays the current direction of the wireless system (see Status Panel).

## Selecting a antenna array direction

To change the direction of the antenna array, click on the Compass Graphic area of the screen. Using the shadow lines as a guide, select a new direction. The large green antenna direction arrow points in the new direction. The Status Panel updates to show the new Direction (Dir:) and Angle (Ang:). A pair of hot keys can be configured in the General Configuration dialog screen that allows the operator to rotate the antenna array in a clockwise or counter clockwise direction.

## Status Panel

The Status Panel at the bottom of the screen displays the current condition of the Hi-Z USB Wireless system.



The **USB COM Port status** indicates the USB communication status between the PC and the Hi-Z USB Wireless controller. If there is no connection, the field is blank. If there is an error opening the connection, “Err Open” is displayed. If the USB COM Port is successfully opened, the field displays the selected COM port ID.

**Direction and Angle of the Antenna Array.** The direction field represents the compass cardinal point of N for north, E for east, NE for northeast, and so on. The angle field represents the compass angle in degrees (0° to 259°). These fields are updated when a new antenna direction is selected.

The **Antenna Array type.** This field displays the type of Hi-Z Antenna Array that has been configured in the application. For the system to work properly, the antenna array type must match the Hi-Z Antenna Array connected to the Hi-Z RX unit.

**Wireless Signal strength.** This graphical indicator shows the relative signal strength between the Hi-Z USB Wireless controller and the Hi-Z RX unit. A higher percentage value represents a stronger signal.

**Wireless Com status.** If there is a communication problem between the PC and the Hi-Z USB Wireless controller, the status indicator is **Red**. If there is a communication problem between the Hi-Z USB Wireless controller and the Hi-Z RX unit, the indicator is **Yellow**. If the system is working correctly and there are not problems, the indicator is **Green**.

**Local or GMT time.** Depending on the configuration, either local or GMT time is displayed.

## Trouble shooting

PC cannot communicate with the Hi-Z USB Wireless controller.

Symptom	Possible cause
Red power LED on the Hi-Z USB Wireless controller not on.	USB/Ext switch not in USB position.
	PC not providing power over the USB port.
The yellow and green COM LED's not blinking.	The Hi-Z USB Wireless program not running.
	Incorrect COM port selected from the Hi-Z USB Wireless program.

No communication between the Hi-Z USB Wireless controller and the Hi-Z RX unit.

Symptom	Possible cause
Red power LED on Hi-Z RX unit not on.	Make sure the Hi-Z RX unit has power, 11 to 14.8 VDC
No Single Strength LED's lit	Hi-Z USB Wireless unit and the Hi-Z RX units are too far apart.
	There are obstacles between the units.

Relay outputs on the Hi-Z RX unit is incorrect.

Symptom	Possible cause
Incorrect outputs from the Hi-Z RX unit.	Check the Configuration for the Antenna type in the Hi-Z USB Wireless application.

## Support

For support of this product, please contact Hi-Z Antennas.

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