AVA Manual

Congratulations on your new AVA: Smart Avalanche Danger Rose! AVA is designed to display a constant visual indication of the avalanche danger in the Wasatch mountain range. Each day, she checks the Utah Avalanche Center's forecast for avalanche danger. AVA gives you a color-coded avalanche danger for each direction and elevation, broken into 24 segments. Here is a brief overview of how it works.

The danger rose is separated into eight directions at three elevations. The tallest level represents terrain above the tree line (over 9500 ft), the middle level represents terrain within the treeline (8000-9500 ft), and the lower level represents terrain below the treeline (below 8000 ft). Each level is separated into the directions of a traditional compass rose. Each of these segments is color coded with the following danger levels.

No Forecast	Low Danger	Moderate Danger	Considerable Danger	High Danger	Extreme Danger

Figure 1. Forecast color definitions.

Traditionally, the color for extreme danger is black. However, it's not possible to illuminate a segment black, so any segments with extreme danger will fade between red and magenta to represent the extreme danger.

If a forecast is for the current day, it will be constantly displayed. If the forecast is more than 16 hours old, it will be displayed alternating with white to let you know that the forecast has not been updated that day. In the event that the forecast is all white (no forecast) for the previous day, the station will fade between white and off.

If a forecast is available, the station will update daily. Any issues with the retrieval or processing of forecast data will prompt the station to display an error light code. In other words, if there is a forecast being displayed, including all white, all systems are operating as intended.

Any time your station turns on and acquires an internet connection, the latest available forecast will be downloaded and displayed.

Setup

AVA is designed to operate autonomously, but she does need your help for the initial setup. Plug in the station and wait for the lights to display a rainbow effect. Next, make sure you have your Wi-Fi network name and password available. AVA will start to broadcast her own Wi-Fi network named "AVA Wi-Fi Setup." Connect to this network like you would any other. It is recommended to select the "Connect Automatically" checkbox to have the smoothest connection experience.

Within a few seconds of connecting, your computer should automatically open the Wi-Fi setup page. If it doesn't do it automatically, you can open a browser window and enter "192.168. 4.1" in the address bar. This should bring you to a white page with some blue buttons on it.

Click "Configure WiFi". Next, select your Wi-Fi network from the menu and enter the password. If there isn't a menu, you may have to enter your Wi-Fi's name manually. Pay careful attention to capitalization and spelling. You should also select your desired forecast region from the dropdown menu. Once your details have been correctly entered, press "Save". AVA will try to connect and fetch the latest forecast for the selected region. It should take less than a minute if everything is working properly.

That's it! Unless you change your password or bring your station to a place outside your network, you should be all set. If one of those things does happen, AVA will detect the network is unavailable and start displaying the rainbow lights again, in addition to broadcasting the Wi-Fi Setup page. Just repeat the steps above and you'll be ready to go again.

If your computer keeps giving you a "Network Change Detected" page when you try to set up the WiFi, we recommend that you disconnect from your usual Wi-Fi before connecting to AVA's access point. We also recommended that you select the "Connect Automatically" checkbox.

AVA has a micro-USB power input. An adapter was included with your AVA for convenience, but you are free to use your own if you would like to. The adapter must supply at least 2.5 amps at 5V and be very stable. A low-cost power supply may cause AVA to have unpredictable performance.

AVA can only communicate with you through her lights. Here are the light codes your station is programed with and what they mean. System information and error

codes are very easy distinguish from forecasts, as the station will fade each segment between alternating colors, as shown in Figure 2.

If you choose not to save the forecast region as default by deselecting the checkbox during setup, AVA will default back to the Salt Lake region or the last user-specified default region after a power cycle. If you want to change from the default region, you need to unplug AVA and turn off the Wi-Fi she is connected to before powering back on. Once you see the "AVA Wi-Fi Setup" hotspot appear, turn your Wi-Fi back on and go through the setup process again. Select your new forecast region and you are ready to go!

One last thing – AVA is able to update her own firmware to the latest version. She will try to do this when first powered on to ensure the best user experience. AVA will show a colorwheel before a blue progress wheel as the update is downloaded. Once everything is complete, she'll give a bright green pulse before restarting. AVA will remember your Wi-Fi password and default forecast region after the update. If you chose to not save a default region, automatic updates will be disabled until the next power cycle (so AVA doesn't restart and loose the current region).
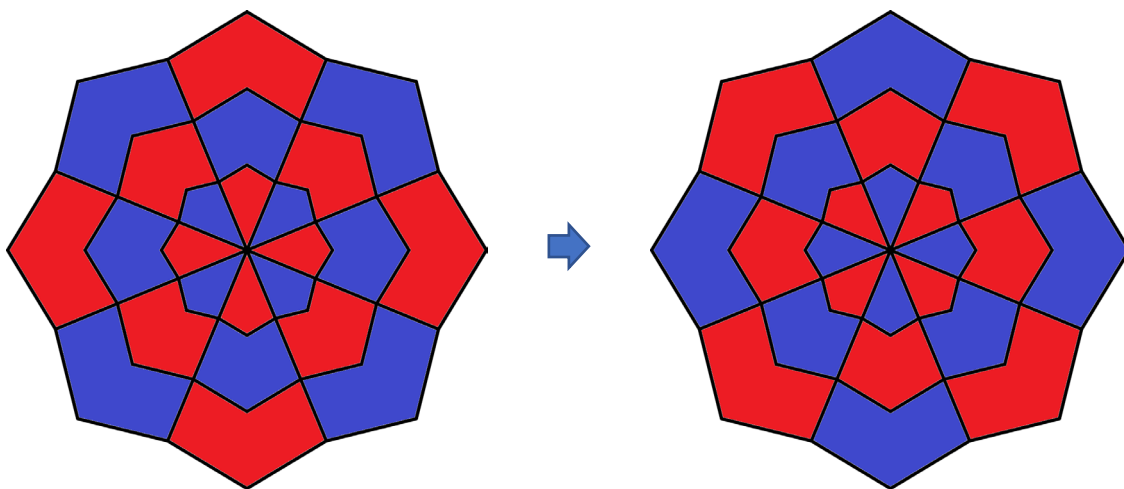

Figure 2. No Internet Error Code Progression

	State	Light code	Description
Normal	Current Forecast	Any combination of white, green, yellow, red, and magenta.	System operating normally.
	Old Forecast	Any forecast fading to white or off.	System operating normally, forecast issued yesterday.
System Information	Acquiring Internet	Rainbow cycle.	Waiting for internet connection. Make sure you have provided AVA with your Wi-Fi information.
	Automatic Update	Color wheel followed by blue progress bar.	New firmware is available and being downloaded.
	Season Ended	White and Green	Its currently a month with no avalanche forecasts.
Errors	No Internet	Red and Blue	Unable to establish internet connection during forecast window.
	Forecast Error	Red and White	Error retrieving or processing forecast.