

CJC Comparison - Help

The purpose of the comparison is to demonstrate the usefulness of the temperature sensor for CJC temperature calculation. This program feature allows the user to enter in a constant temperature, then view at graph of thermocouple temperature as calculated with the constant temperature versus the dynamic temperature as determined by the ADS1118.

Options Related to Comparison

Figure 1 shows the different options of the that can be set for the comparison tab. The *Constant CJ Temp.* field is where the constant temperature is entered for the cold junction compensation (the red waveform). The ADS1118 will provide the dynamic temperature for the other (blue) waveform, this is temperature is displayed in the *Detected CJ Temp* field.

The *MUX Input* menu allows the user to select the inputs on the ADS1118 to monitor.

The *Thermocouple Type* field allows the type of thermo couple to be selected. By default, type 'K' is selected, as the ADS1118EVM hosts 'K' type connectors.

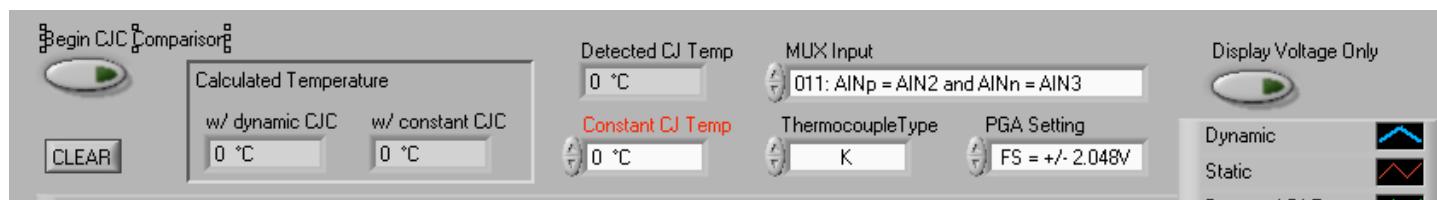


Figure 1: Basic layout of the comparison tab

The *PGA Setting* field allows the full-scale voltage to be selected. For most thermocouple applications, then $\pm 0.256V$ can be used.

The *Begin CJC Comparison* toggle button begins and ends the comparison. The comparison will continue as long as the button is set in the *on* position. The *Clear* button will clear both the waveforms that are currently displayed.

The *Display Voltage Only* toggle button allows for voltage wave-form to be displayed instead of the temperature wave-form.

Interpretation of the Waveforms

The reasoning behind including this tab as a feature in the ADS1118EVM software is to demonstrate the enhanced accuracy of temperature detection using thermocouple and CJC with a dynamic temperature value. As the temperature of the cold junction deviates from the user-inputted cold junction temperature, the calculated temperature of the thermocouples will diverge from the actual temperature.