

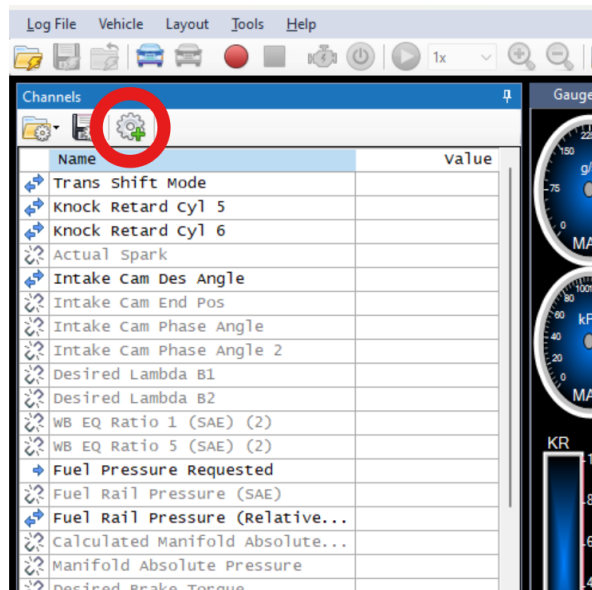
Analyzing the Knock Detective's output with HPtuners VCM Scanner

V1.0 – Jan 14, 2025

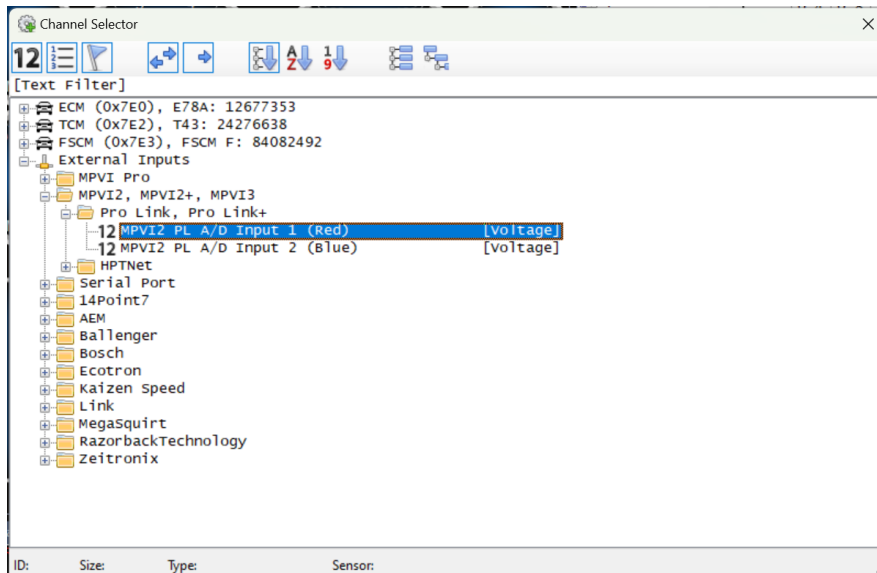


1 – Connect the **BLUE** wire from the Knock Detective to one of the two analog inputs on your ProLink. Depending on how you grounded the Knock Detective, you may also need to connect the ground from the gauge to the ProLink as well, but since the exact voltage isn't important a slight ground offset will be fine.

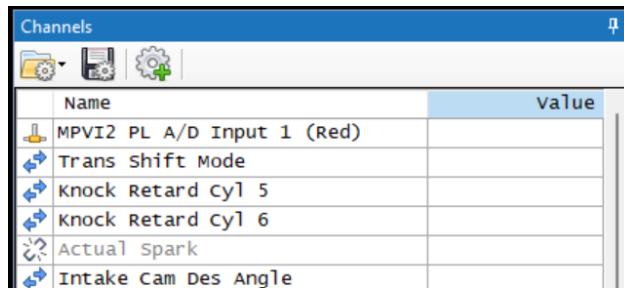
2 – Open up VCM Scanner and add a new channel by clicking the gear icon:



3 – Select the input you have the Knock Detective's BLUE wire connected to:

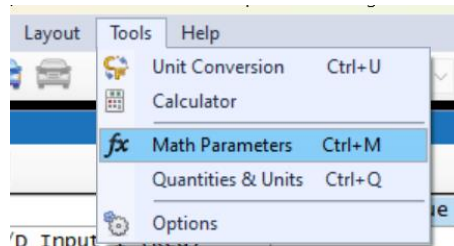


4 - You should now have the channel in your list:

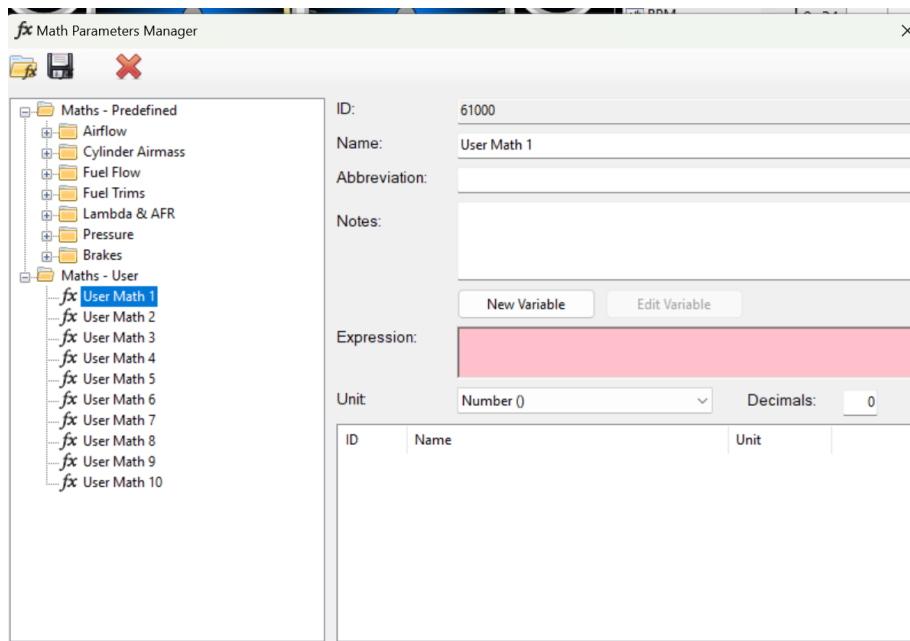


Name	value
MPVI2 PL A/D Input 1 (Red)	
Trans Shift Mode	
Knock Retard cyl 5	
Knock Retard cyl 6	
Actual Spark	
Intake Cam Des Angle	

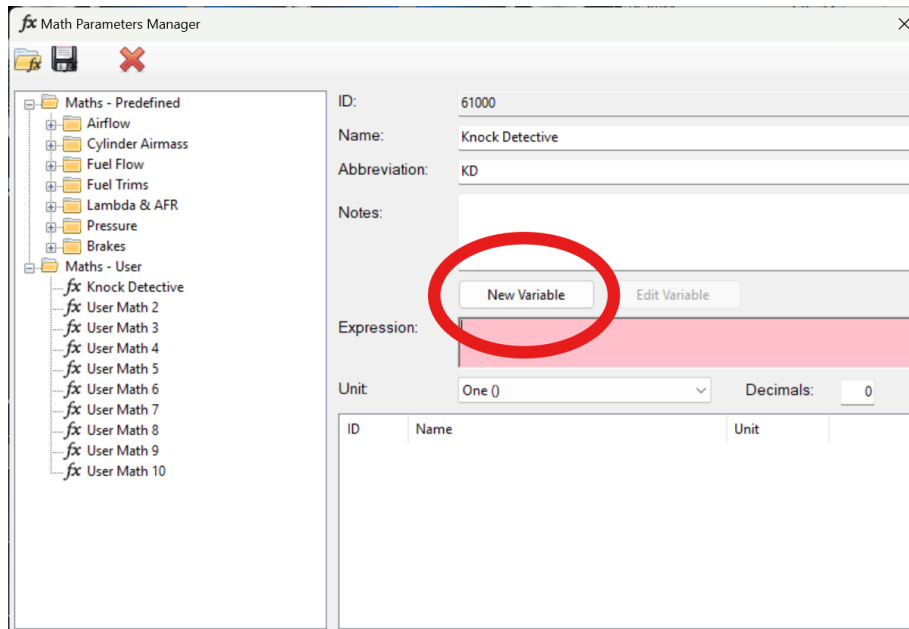
5 - Next, we are going to create a math parameter in order to better visualize the Knock Detective's output. Under the Tools tab at the top of the screen select Math Parameters or hit Ctrl+M:



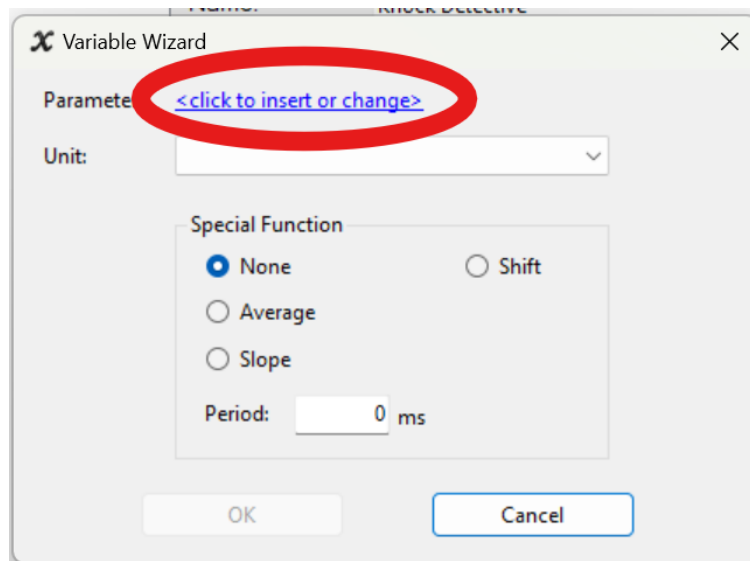
6 - Select a free User Math parameter:



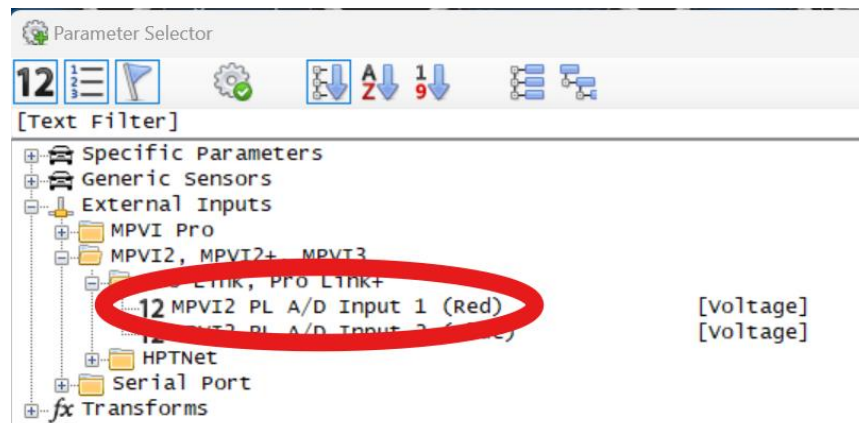
7 - Change the name and click New Variable:



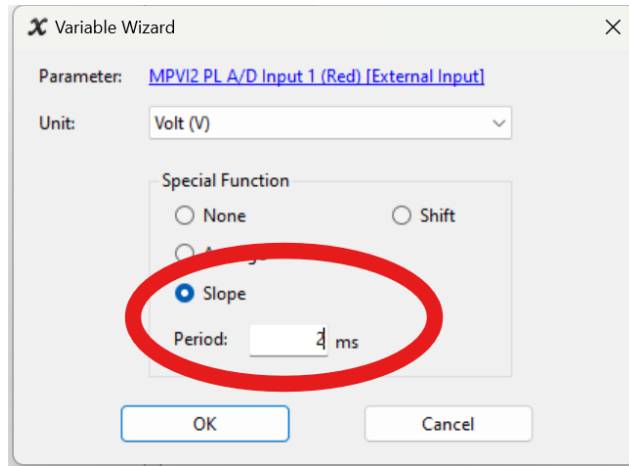
8 - Click <click to insert or change>:



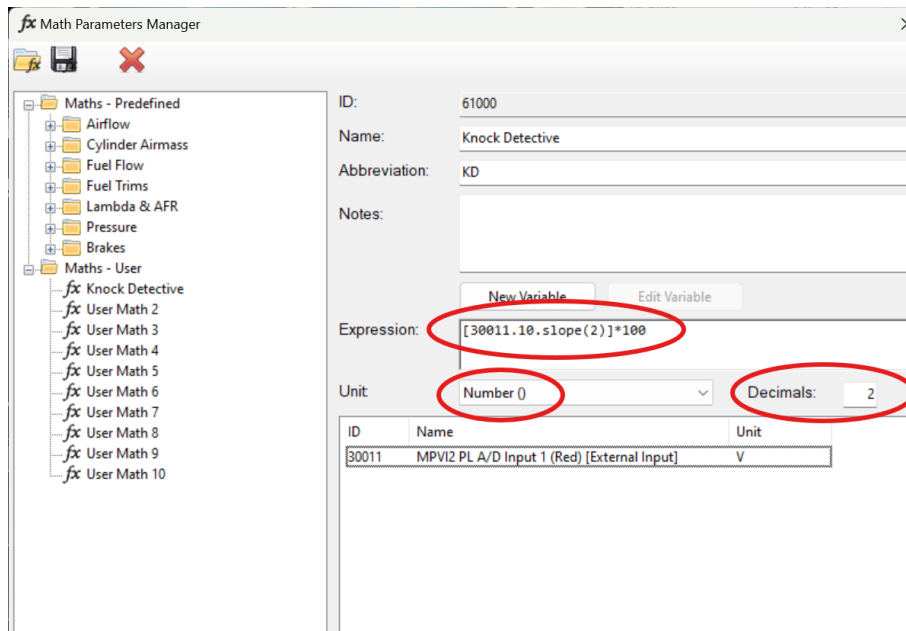
9 - Select the channel which corresponds to your input:



10 - Click the slope function and change the number to 2ms. The amplitude from the Knock Detective will rise with RPM/Load, but fairly smoothly. Using the slope function allows the software to focus only on the spikes relating to knock events and not the overall amplitude. You can experiment with different numbers, but generally 2ms works well. Click OK:



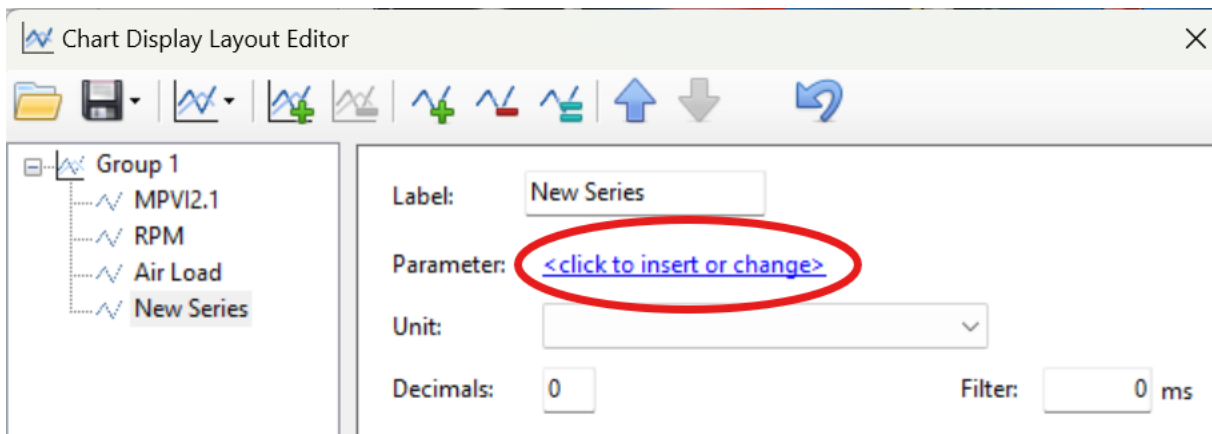
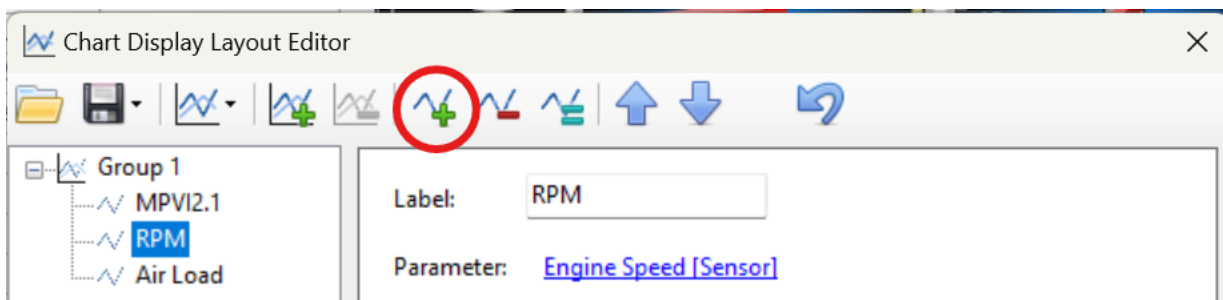
11 - Add a multiplier of 100 to the end of the expression as shown below. This makes the output more manageable when looking at it in the histogram view later. Changed the Unit to Number and Decimals to 2 and then hit the X in the top right to close the window:

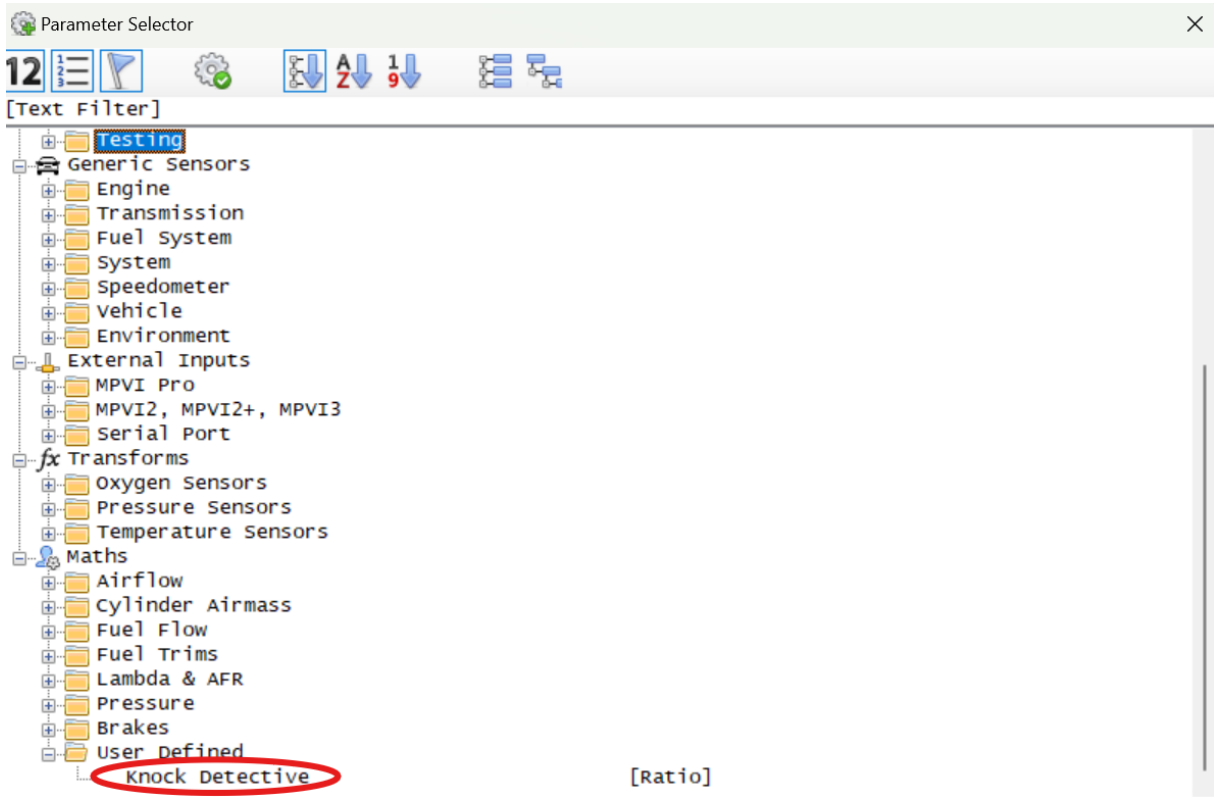


12 - At the bottom of the screen, right-click on the area to the left of the chart vs time area and select Charts Layout:

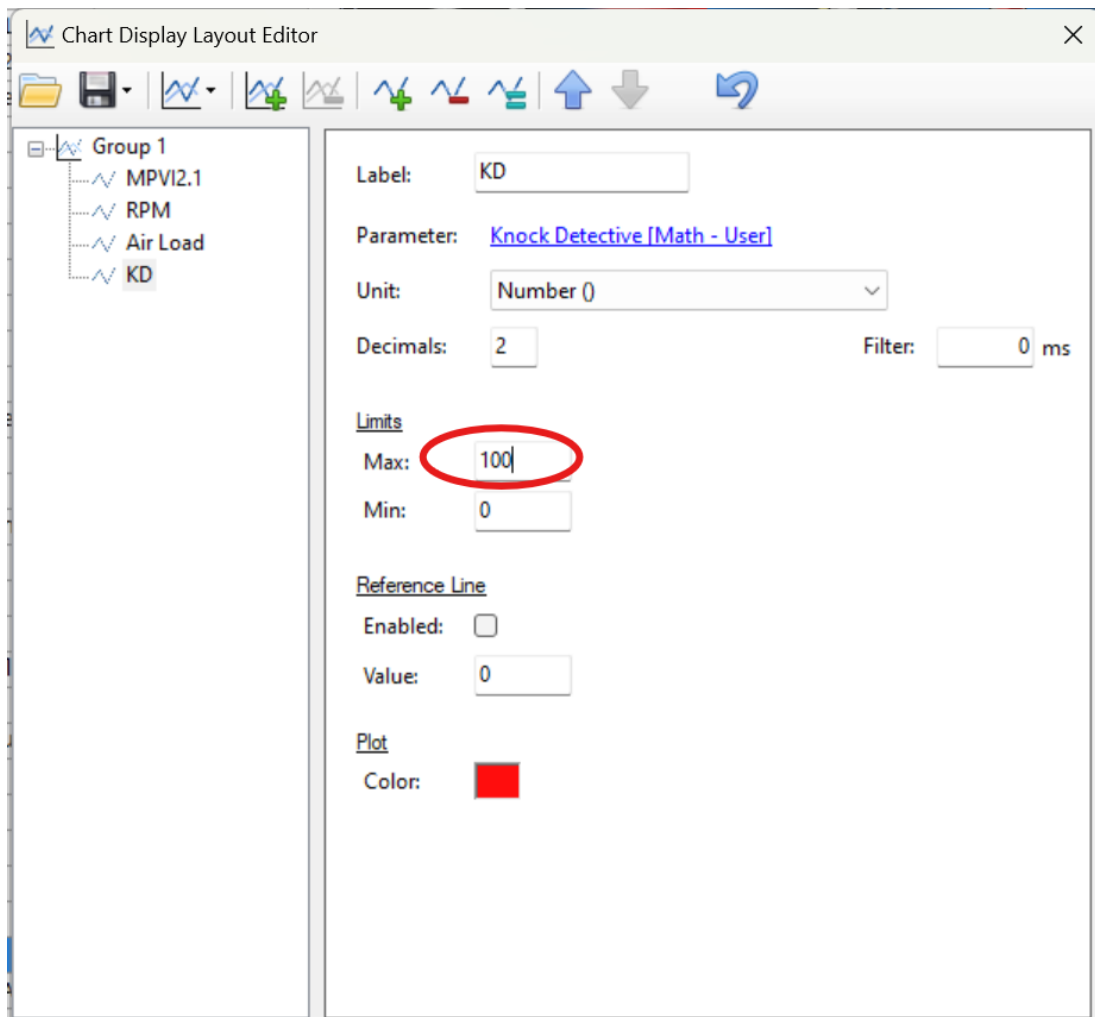


13 - Add the Knock Detective math channel by clicking the plus sign (Add Series). Find the math channel you created and add it:





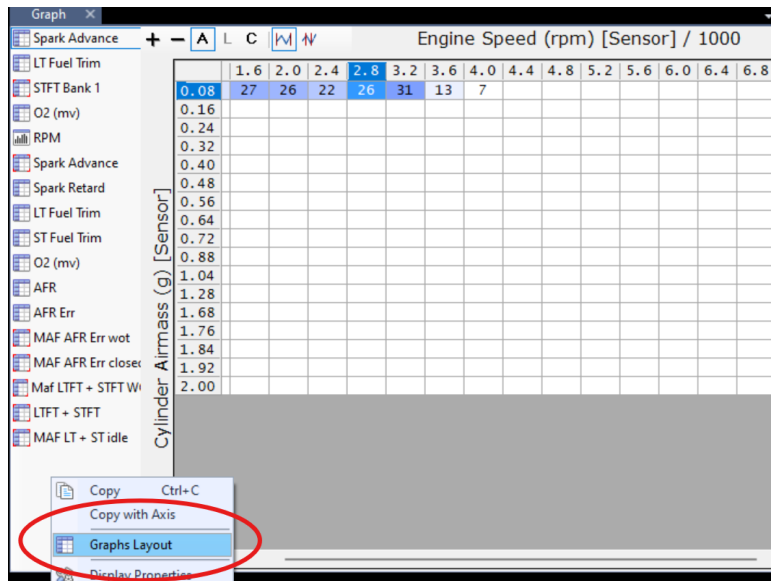
14 - Change the Max to 100, and chose a color you'd like it to show up as:



15 - You are now ready to look for spikes indicating knock events. In the below picture I have a knock event being shown in both the raw voltage from the Knock Detective (blue) and the math parameter/slope function (red).



16 - Now let's set up a graph so you can see exactly where in your fuel/timing maps the knock occurred. Start by right-clicking in the area to the left of the graph and select Graphs Layout:



17 - Add a new Graph by clicking the plus icon:

