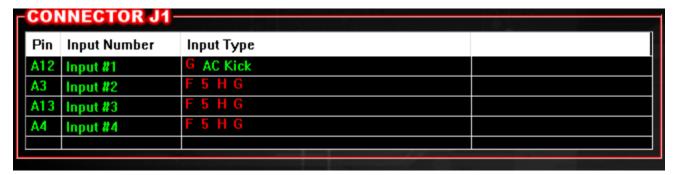
Analyzing the Knock Detective's output with Holley Terminator X V1.0 - Jan 15, 2025



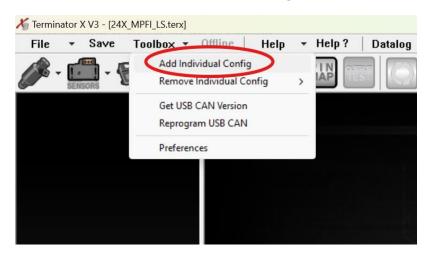


1 – Connect the **BLUE** wire from the Knock Detective to an available analog input wire on your Holley Terminator X ECU. Take note of which input you have selected. Make sure there is a ground connection from the Knock Detective to your ECU. Since the exact voltage isn't crucial, the ground connection through the chassis may be sufficient. Depending on your specific model/vehicle you may have different available inputs. Click the **Pin Map** icon to view which wires are available:

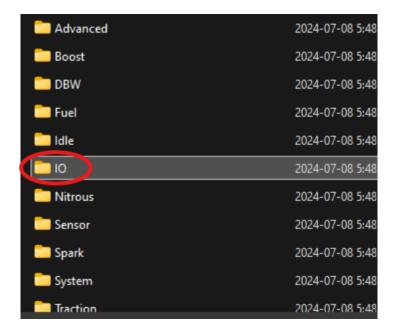




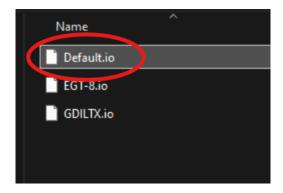
2 - Click **Toolbox**, and then click **Add Individual Config**:



3 - Navigate to the **IO** folder:



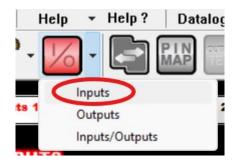
4 - From within this folder select **Default.io**:



5 - This will enable the I/O icon:



6 - Select **Inputs** from the dropdown:



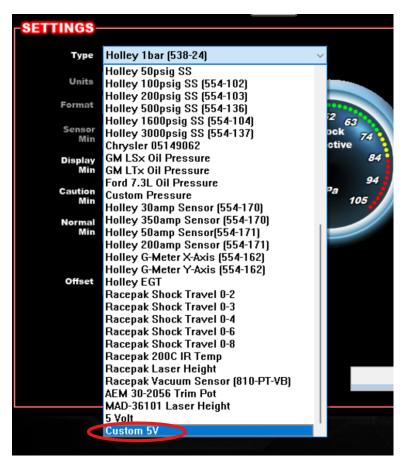
7 - Select **ENABLE**, then type in **Knock Detective** and select **5 VOLT** as shown below:



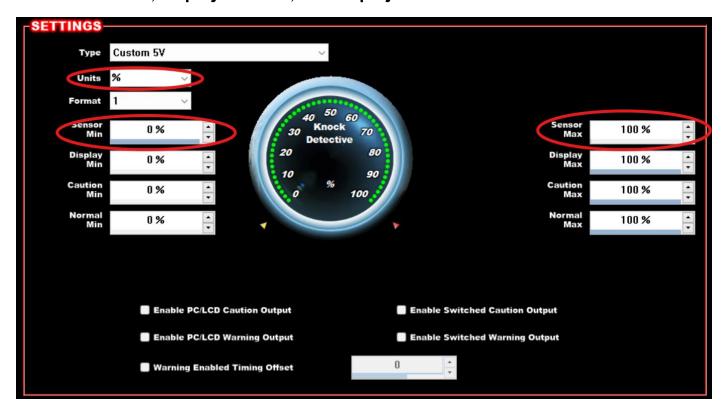
8 - Click the Configure button:



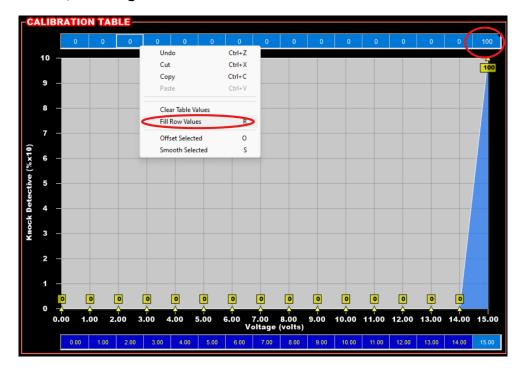
9 - Under Type, scroll to the bottom of the list and select Custom 5V:



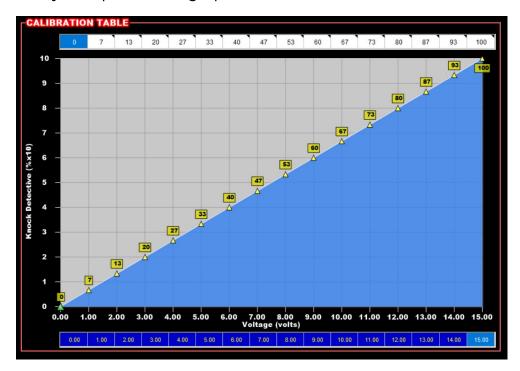
10 - Set Units to %, Display Min to 0, and Display Max to 100:



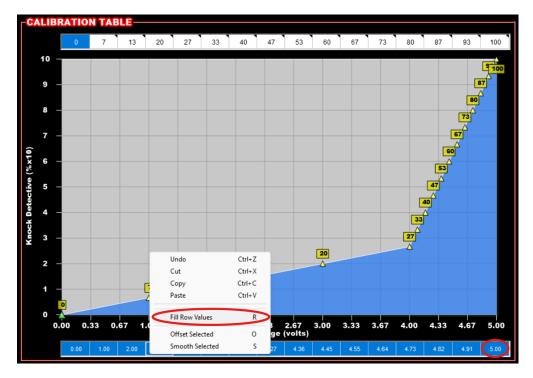
11 – Under the **Calibration Table**, enter 100 as the last value in the top row, then select all the values in the row, then right-click and select **Fill Row Values**:



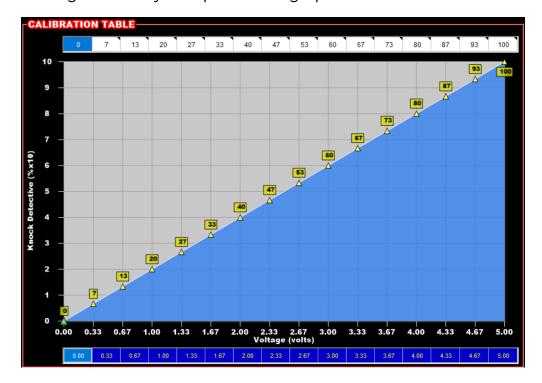
12 - This will linearly interpolate the graph:



13 - Next, enter 5 as the last value in the bottom row, then select all the values in the row, then right-click and select **Fill Row Values**:



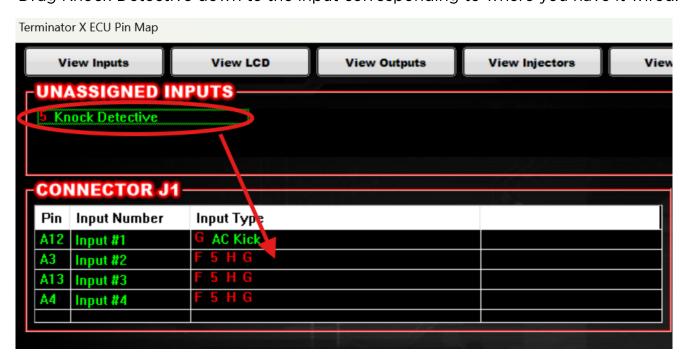
14 - This will once again linearly interpolate the graph:



15 - Now that the input has been configured, it's time to assign it to the wire you connected the Knock Detective's **BLUE** wire to. Click the **Pin Map** icon:



16 - Drag Knock Detective down to the input corresponding to where you have it wired:



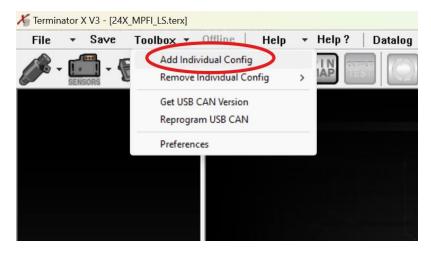
17 - Click **Done**:



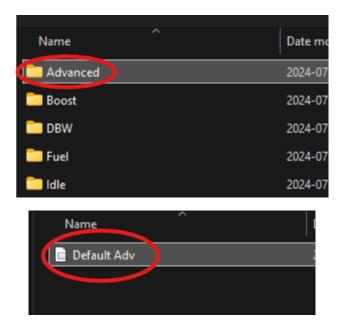
18 - You should now see it assigned to that input:



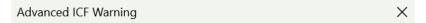
- 19 You are now ready to start datalogging the Knock Detective's Output!
- 20 You can also get creative with how you use this parameter in your ECU. For example, after setting the sensitivity of the gauge, if you do a full throttle pull all the way to redline, record the Knock Detective's output while verifying there was no knock using your headphones, you will now have the amplitude vs RPM of a clean run. Using this information, you can set up a table which references **RPM** vs **Knock Detective Output**. This table can then retard timing if the amplitude goes above the threshold you recorded. In order to do this, we must add another individual config:



21 - From within the **Advanced** folder, select **Default Adv**:



22 - Ya ya ya ya ya, ok:





WARNING: If you proceed, will be adding the Advanced Tuning Individual Configuration File (Advanced Tuning ICF). The Advanced Tuning ICF provides the user with extended functional capabilities that, in turn, require the user to have a high level of tuning understanding in order to effectively utilize the file's functionality. Understand that there are no constraints placed on what combination of functions and X/Y axis selections that can be made. As such, the functions in the Advanced Tuning ICF are custom-made by you. Any changes implemented through the Advanced Tuning ICF function will be made based on the specific and calculated requirement(s) that you set, so it is extremely important that you understand what you are doing before implementing any of these functions. The choices you make in the Advanced Tuning ICF can result in severe engine and or vehicle damage, for which you are and will be solely and fully responsible. So it is your responsibility to anticipate and understand the direct result(s) of your selections. If you do not understand the Advanced Tuning ICF, enlist the services of a qualified Holley EFI tuner. The Advanced Tuning ICF feature of this software is not supported thru Holley's Technical Services or Engineering Departments. Holley has no liability to you for any personal injury (including death) or property damage that may result from any use of the Advanced Tuning ICF.

If you accept the risks and all liability for vehicle, engine, equipment, and all other damage, including personal injury, that may result from use of the Advanced Tuning ICF and wish to proceed, click "OK." Otherwise click "Cancel."



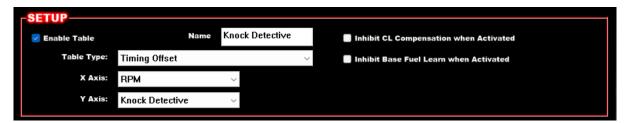
23 - We now have access to some advanced features using this icon:



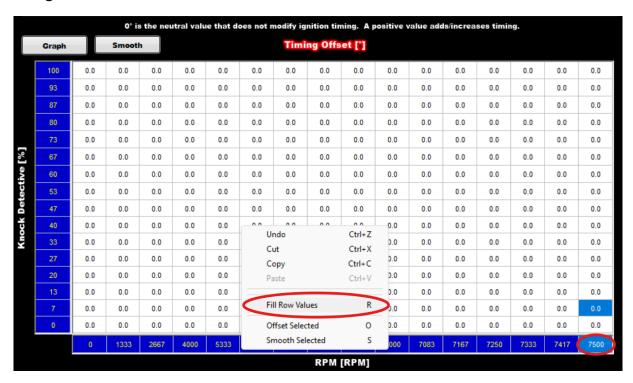
24 - Select Table 1 from the 2D table dropdown:



25 - Enable the table and populate the values as shown below:



26 - Change the last RPM value to something that makes sense for your specific engine and then right-click and fill values:



27 - Now review your datalog which had the full pull with no knock in it. As an example, imagine the thick green line below was the output from the Knock Detective from that pull. Now I can tell the ECU that if the amplitude spikes above that level, retard the timing by a certain amount. These values are just a starting point, and this is somewhat experimental, so use at your own risk. I will do more testing this spring.

0° is the neutral value that does not modify ignition timing. A positive value adds/increases timing.																		
	Graph	Smooth			Timing Offset [*]													
	100	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	-10.0	
	93	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	
	87	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	
	80	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	-8.0	
	73	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	0.0	0.0	0.0	0.0	
Knock Detective [%]	67	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-3.0	-3.0	0.0	0.0	0.0	0,0	
	60	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-5.0	-3.0	-3.0	-3.0	-3.0	-3.0	0.0		J.U	0.0	
	53	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	0.0	0.0		0.0	0.0	0.0	
	47	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	-3.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	
	40	-3.0	-3.0	-3.0	-3.0	0.0	0.0	0.0	0.0	^ -		0.0	0.0	0.0	0.0	0.0	0.0	
	33	0.0	0.0	0.0	0.0				v.v	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	27			_	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	20	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	13	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
	0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
		0	500	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500	6000	6500	7000	7500	
									RPM	[RPM]								