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Device Software Interface

The Knock Controller provides a software interface to view current knock activity as well as configure the unit to the user’s preference.

Knock Graph

This graph represents detonation per RPM.

The graph will show:

- Green dots - Representing engine sound level
- White line - Automatic threshold line
- Orange dots - Representing detected detonation, abnormal noise levels/pressure.

Knock Zones

When RPM input is used the knock zones (split zones of RPM) will each give its own knock volt output based on historical knock information for your engine. It learns the bad spots and will retard timing in specific zones. It goes from 0 to 100% of intensity (turns red) when detonation is horrible in that particular zone. When voltage output is used 0 represents 0V and 100% represents 3.3V.
• **COM Port** – The COM port the device is using. Trial and error until you get the right one.
• **Bore size** - Diameter of piston in mm
• **Amplify** - User should adjust this to ensure the engine sound is not too loud or too soft.
  - The unit will auto reduce this value if it finds it is too loud
• **Min RPM** - Minimum RPM where knock control will work.
• **Max RPM** - Maximum RPM where knock control will work.

**Advanced Tab**

• **Knock Increment** - The knock controller accumulates a value until it reaches a maximum. The amount incremented each cycle is defaulted to 200. The higher the total increment the higher the voltage output and more timing should be pulled.
• **Decrement** - After knock has been identified a value would have been accumulated that represents the voltage output in a knock zone. The knock controller will try to test the zone again by decrementing this value slowly, replacing the removed timing from the map. If this is successful, then the values will be restored to 0 and ignition timing would have been back to normal for that zone. The default decrement is 1.0
• **Min TPS volts** - The TPS value between 0 and 5V (0 and 100% TPS), above which the system will control knock. Any knock below this value will be ignored. MAP sensor can also be used here if you are familiar with the voltage range of that sensor.
• **RPM Divisor** - The default is 4 for four-cylinder distributed systems using the ignition control module signal wire for RPM signal.
• **Output mode** -
  - Volts – Default. Outputs a range of volts. 0V = no knock while 3.3v heavy knock
  - Frequency – Outputs a flex fuel style frequency. 50 to 150 Hz. 50Hz represents 100% knock, 150Hz represents no knock
  - Volts inverted – 3.3 to 0 V, where 3.3V represents no knock and 0V represents knock
Connections

Connecting Knock Sensor

It is recommended that the wires you use to the knock sensor signal wires be twisted together with a drill to make a twisted wire pair. You can then add tubing or heat shrink over this wire and join to the pigtail provided and the other end to the TAN and GRAY wires on the loom provided. This will help with noise shielding.

Pinout – Knock Control Unit Connector

<table>
<thead>
<tr>
<th></th>
<th>RPM -</th>
<th>Knock</th>
<th>NC</th>
<th>OUTPUT</th>
</tr>
</thead>
<tbody>
<tr>
<td>GND</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12V</td>
<td>RPM +</td>
<td></td>
<td>TPS/MAP</td>
<td>NC</td>
</tr>
</tbody>
</table>

NC = not connected

Red or Purple = Switched power
White = Sensor GND
Black = RPM -VE / signal (ICM)
Yellow = RPM +VE (could also connect this to switched power wire)
Knock = Tan and Gray
TPS/MAP = 5V return signal
Output = Goes to analog input of ECU

*Remember, black wire is for RPM signal and not ground for the unit!*