**Vi-PEC i44 & i88 ECUs to CD-7 Displays**

**Supported Devices**

Vi-PEC i44 ECU  
Vi-PEC i88 ECU

**CAN Bus Wiring**

AEM CD has 2 separate CAN ports. For 3rd party devices, AEM recommends you use AEM CAN Bus 2, whose connections are contained in a 2 pin Deutsch DTM connector. On older harnesses it may be in an unterminated, twisted/shielded flying lead in the dash harness.

The i44 & i88 have a dedicated communication port which contains the CAN Hi and CAN Lo connections. The simplest method of connecting the CD-7 to these ECU's is to use the AEM to Link/ViPEC adapter harness (AEM P/N 30-2215). Doing this enables the CD-7 to be driven directly off the Communication connector and is a simple plug & play installation. Please take care if you are not using the AEM PnP Adaptor and are using the ViPEC flying lead cable (P/N CANDASH) that ViPEC states should not be used for CAN only comms as it has the RS232 wires in it as well, and will corrupt your USB communications. We can confirm that using the CANDASH lead, even with the RS232 wires unterminated and insulated prevents the USB comms from working properly.

**Vi-PEC CAN HIGH (Pin 3) → AEM CD Dash "CAN 2" 2 Pin DTM Pin 1 (CAN 2+), Gray wire in twisted/shielded pair**  
**Vi-PEC CAN LOW (Pin 4)→ AEM CD Dash "CAN 2" 2 Pin DTM Pin 2 (CAN 2-), Black wire in twisted/shielded pair**

**Terminating Resistors:**  
The Vi-PEC i44 & i88 ECU's have terminating resistors installed internally. As long as the ECU is on one physical end of the CAN Network and the CD-7 is on the other with its terminating resistor activated then no further action regarding terminating resistors is required.

**ECU Software Setup**

The 'Transmit Generic Dash' mode sends out a range of common parameters and is designed for dashes that are able to have a custom configuration.  
1. Open the CAN Setup window (PCLink > ECU Controls > CAN Setup)  
2. Select the CAN module to be used  
3. Set the Mode to 'User Defined'.  
4. Configure the Bit Rate to 1 Mbit/s  
5. Select a spare CAN channel.  
6. Select 'Transmit Generic Dash' from the Mode drop-down menu.  
7. Set the CAN ID to 1000.  
8. Set the Format to "Normal"  
9. Set the Transmit Rate to 20Hz  
10. Click Apply, then OK  
11. Make sure a Store (F4) is performed.
**Supported Channels**

The CD Dash supports the following 54 data channels transmitted by the i44 and i88 ECUs:

<table>
<thead>
<tr>
<th>CH</th>
<th>Channel Name</th>
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<th>CH</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>EngineSpeed</td>
<td>19</td>
<td>AFR1</td>
<td>37</td>
<td>ECU_FaultCodes</td>
</tr>
<tr>
<td>2</td>
<td>IntakeManifoldAirPress</td>
<td>20</td>
<td>AFR2</td>
<td>38</td>
<td>ECU_TriggerCounter</td>
</tr>
<tr>
<td>3</td>
<td>BoostPress</td>
<td>21</td>
<td>FuelPress</td>
<td>39</td>
<td>RPM_Limit</td>
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<tr>
<td>4</td>
<td>BaroPress</td>
<td>22</td>
<td>OilTemp</td>
<td>40</td>
<td>MAP_Limit</td>
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<tr>
<td>5</td>
<td>ThrottlePos</td>
<td>23</td>
<td>OilPress</td>
<td>41</td>
<td>Speed_Limit</td>
</tr>
<tr>
<td>6</td>
<td>FuelInjDutyPrimary</td>
<td>24</td>
<td>ECUBatteryVoltage</td>
<td>42</td>
<td>MaxIgnition_Flag</td>
</tr>
<tr>
<td>7</td>
<td>FuelInjDutySecondary</td>
<td>25</td>
<td>WheelSpeedFrontLeft</td>
<td>43</td>
<td>Antilag_Ign_Cut</td>
</tr>
<tr>
<td>8</td>
<td>FuelInjPulsewidth</td>
<td>26</td>
<td>WheelSpeedRearLeft</td>
<td>44</td>
<td>HighSupplyVoltage_Limit</td>
</tr>
<tr>
<td>9</td>
<td>CoolantTemp</td>
<td>27</td>
<td>WheelSpeedFrontRight</td>
<td>45</td>
<td>Overrun_Flag</td>
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<tr>
<td>10</td>
<td>IntakeManifoldAirTemp</td>
<td>28</td>
<td>WheelSpeedRearRight</td>
<td>46</td>
<td>Traction_Limit</td>
</tr>
<tr>
<td>11</td>
<td>MassAirflow</td>
<td>29</td>
<td>KnockLevelCyl1</td>
<td>47</td>
<td>LowSupplyVoltage_Flag</td>
</tr>
<tr>
<td>12</td>
<td>GearPosCalculated</td>
<td>30</td>
<td>KnockLevelCyl2</td>
<td>48</td>
<td>LaunchRPM_Limit</td>
</tr>
<tr>
<td>13</td>
<td>FuelInjTiming</td>
<td>31</td>
<td>KnockLevelCyl3</td>
<td>49</td>
<td>Wakeup_Flag</td>
</tr>
<tr>
<td>14</td>
<td>IgnitionTiming</td>
<td>32</td>
<td>KnockLevelCyl4</td>
<td>50</td>
<td>GP_RPM_Limit1</td>
</tr>
<tr>
<td>15</td>
<td>CamIntakeLBankPos</td>
<td>33</td>
<td>KnockLevelCyl5</td>
<td>51</td>
<td>CL_Stepper_Limit</td>
</tr>
</tbody>
</table>

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<tr>
<td>16</td>
<td>CamIntakeRBankPos</td>
<td>34</td>
<td>KnockLevelCyl6</td>
<td>52</td>
<td>GP_RPM_Limit2</td>
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<td>17</td>
<td>CamExhaustLBankPos</td>
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<td>KnockLevelCyl7</td>
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<td>18</td>
<td>CamExhaustRBankPos</td>
<td>36</td>
<td>KnockLevelCyl8</td>
<td>54</td>
<td>Cyclic_Idle_Active</td>
</tr>
</tbody>
</table>

The CD-7 also supports the following 109 ECU Fault Codes transmitted by the i44, i88 & G4+ ECUs:

- Accel Pos (Main) High Volt Error
- Accel Pos (Main) Low Volt Error
- Accel Pos (Sub) High Volt Error
- Accel Pos (Sub) Low Volt Error
- Accel Pos Track Error
- IAT Error High Volt
- IAT Error Low Volt
- IAT Signal Error
- MAP Error High Volt
- MAP Error Low Volt
- MAP Limit
- MAP Signal Error
- ECT Error High Volt
- ECT Error Low Volt
- ECT Signal Error
- TPS Error High Volt
- TPS Error Low Volt
- TPS Signal Error
- TPS (Main) not selected
- TPS (Sub) not selected
- TP Tracking Error
- TP 2 Tracking Error
- TP 2 (Main) Fault
- TP 2 (Sub) Fault
- TPS (Main) Error High Volt
- TPS (Main) Error Low Volt
- TPS (Sub) Error High Volt
- TPS (Sub) Error Low Volt
- AP (Main) not selected
- AP (Sub) not selected
- APS CAN Signal Lost
- GDI Pump Ctrl High Press Fault
- GDI Pump Ctrl Low Press Fault
- RPM Limit
- Analog 5V Supply Error
- Aux 17-20 Supply Error
- Aux 9/10 Volt Supply Error
- An V1 Error High Volt
- An V1 Error Low Volt
- An V1 Signal Error
- An V2 Error High Volt
- An V2 Error Low Volt
- An V2 Signal Error
- An V3 Error High Volt
- An V3 Error Low Volt
- An V3 Signal Error
- An V4 Error High Volt
- An V4 Error Low Volt
- An V4 Signal Error
- An V5 Error High Volt
- An V5 Error Low Volt
- An V5 Signal Error
- An V6 Error High Volt
- An V6 Error Low Volt
- An V6 Signal Error
- An V7 Error High Volt
- An V7 Error Low Volt
- An V7 Signal Error
- An V8 Error High Volt
- An V8 Error Low Volt
- An V8 Signal Error
- An V9 Error High Volt
- An V9 Error Low Volt
- An V9 Signal Error
- An V10 Error High Volt
- An V10 Error Low Volt
- An V10 Signal Error
- An V11 Error High Volt
- An V11 Error Low Volt
- An V11 Signal Error
- An V12 Error High Volt
- An V12 Error Low Volt
- An V12 Signal Error
- An V13 Error High Volt
- An V13 Error Low Volt
- An V13 Signal Error
- E-Throttle1 Low Ctrl Volt Error
- E-Throttle1 Low Volt Error
- E-Throttle1 Max Duty Error
- E-Throttle1 Min Duty Error
- E-Throttle1 Curr/Temp Error
- E-Throttle1 Pos Ctrl Error
- E-Throttle2 Low Ctrl Volt Error
- E-Throttle2 Low Volt Error
- E-Throttle2 Max Duty Error
- E-Throttle2 Min Duty Error
- E-Throttle2 Curr/Temp Error
- E-Throttle2 Pos Ctrl Error
Layout Overview & CAN Setup

The fastest way to get something working is to use the AEM created setup for the Vi-PEC/G4+ ECU.

It is titled “Default-Black-LinkG4+.aemcd7” and can be found in the same location as this document was. This is a version of our default black layout that has the Vi-PEC CAN inputs pre-configured and includes the 54 data channels listed earlier as well the 109 distinct ECU fault codes. If you choose this method then simply load this configuration into the dash and as long as the CAN is connected to CAN2 then you are done.

If you want to create something from scratch, you can either start with a new dash layout by selecting “File” then “New” in DashDesign or you can select from a pre-designed layout that has screens already designed and inserted but has the CAN inputs left blank. These are chosen by selecting “File” then “Open” and selecting one of the setups titled xzyblank.aemcd7 with the xyz representing a description of the layouts contained in the file.

To import the CAN configuration into your setup you select “Setup” then “Display” from the main DashDesign menu. Once the dialog box opens you select the “CAN Receive” tab.

Change the settings to the following:

Show: “Port 2”
Baudrate: 1 Mbit/s
Termination Resistor: “ON”
Address Mask: “OFF”
M800 Support: “OFF”

Then click on “Import CAN” on the lower left and select the Vi-PEC/Link G4+ CAN setup file. The new items will appear in the Outputs tab. They can now be viewed on the display or logged. You can rename, filter, or manipulate any of these channels to make them more useful. There will also be a Variable String (dynamic text) channel created called “ECU_FaultCodes_string” which can be used to display a scrolling list of the current ECU Fault Codes.