Using Torque Pro with EV Display

Android app called Torque Pro allows users to create custom display gauges to show real time data streaming via Bluetooth dongle. Originally app was made to stream data from OBDII interface, which is standard on all modern OEM vehicles. However, since the app allows custom PIDs (Parameter IDs), it’s possible to feed data from other compatible interfaces. CleanPowerAuto LLC has recently released special firmware and BT dongle for its EV Display product, allowing battery data to be transmitted to Torque Pro app, so customers can create their own custom battery instrumentation.

Requirements:

- You must purchase EV Display main board with special firmware loaded for Torque Pro support, along with BT dongle. If your EV Display was not purchased with these options, please contact CleanPowerAuto via Email for upgrade options and pricing.
- You must purchase Torque Pro from Google Play store and have it installed on your Android device. Please do not bother with free version of Torque, as there will not be any support for it.
- Your Android device must have Bluetooth support for serial port profile (SPP), please check technical specs of your device or contact your device manufacturer to confirm.

Initial configuration: This document assumes that your EV Display has been configured and it’s working correctly. Any configuration issues with EV Display are outside of scope of this document, please refer to EV Display user guides for all issues unrelated to Torque Pro support. This document is only for configuration of Torque Pro app to receive data from EV Display.

BT dongle comes with 5 ft cable and plugs into 4 pin socket on EV Display board. EV Display board is often installed in the engine compartment or other metal enclosures, which act as a Faraday cage, preventing wireless communications. For this reason BT dongle comes with 5 ft cable, so you can route it into the cabin or other suitable place which allows clear wireless communication with your Android device.

1. **Pair BT dongle with your Android device.** Make sure your EV Display and BT dongle are powered up, there should be red LED flashing on the BT dongle. On your Android device, go to Settings, Bluetooth menu, search for BT devices. BT dongle will show up with name “HC-06”, select it and enter pairing passcode 1234 when prompted.

2. **Link Torque Pro to your BT dongle.** Open Torque Pro app, go to Settings menu, OBD2 Adapter settings, Choose Bluetooth Device, and then select HC-06 from the list of paired devices. Also check the option Faster Communications, which improves real time data updates.

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3. **Check Adapter Status Information.** From Torque main screen, select Adapter Status icon. Verify that Torque recognized your adapter, it should look similar to this screen.

4. **Add custom PIDs.** Since custom battery data is not part of standard OBDII protocol, you have to add custom PIDs, one for each value reported by EV Display, so then you can add them to various displays. Open Settings menu in Torque Pro and select Manage extra PIDs/Sensors option. On the next screen, press 3 dot menu icon and select Add custom PID. Enter details for each of 8 custom PIDs as shown in following screenshots.

   **NOTE:** It's critical to enter PID number, Equation, Scale Factor and Unit Type exactly as shown below. However, you can customize Long and Short names, min and max values as you wish. Pick max values which correspond to your specific battery, so your displays scale correctly to full range of values, for better readability.

   Please note that some PIDs carry multiple values, so value name and equation would be different, while having the same PID number.
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<table>
<thead>
<tr>
<th>PID</th>
<th>Long Name</th>
<th>Short Name</th>
<th>Minimum Value</th>
<th>Maximum Value</th>
<th>Scale Factor</th>
<th>Unit Type</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>102301</td>
<td>Pack Voltage</td>
<td>PackV</td>
<td>0.0</td>
<td>(specific to your battery)</td>
<td>x1</td>
<td>V</td>
<td>(((A*256)+B)/10.0)</td>
</tr>
<tr>
<td>102401</td>
<td>Battery Current</td>
<td>Current</td>
<td>0.0</td>
<td>(specific to your battery)</td>
<td>x1</td>
<td>A</td>
<td>(((B*256)+C)/10.0)</td>
</tr>
</tbody>
</table>
PID = 102401
Long Name = Current Direction
Short Name = Charging
Minimum Value = 0.0
Maximum Value = 1.0
Scale factor = x1
Unit type = (leave blank)
Equation = A

PID = 102501
Long Name = Battery Power
Short Name = Power
Minimum Value = 0.0
Maximum Value = (specific to your battery)
Scale factor = x1
Unit type = W
Equation = (A*16777216)+(B*65536)+(C*256)+D

NOTE: If you prefer to see power value in kW instead of W, then set Scale factor to 0.001 and set Unit type to kW
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PID = 102601
Long Name = Battery SOC
Short Name = SOC
Minimum Value = 0.0
Maximum Value = 100.0
Scale factor = x1
Unit type = %
Equation = A

PID = 102601
Long Name = Battery AmpHours
Short Name = AmpHours
Minimum Value = 0.0
Maximum Value = (specific to your battery)
Scale factor = x1
Unit type = Ah
Equation = ((C*256)+D)/10.0
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**PID = 102601**
Long Name = Battery Fuel
Short Name = Fuel
Minimum Value = 0.0
Maximum Value = 100.0
Scale factor = x1
Unit type = %
Equation = B

**PID = 102701**
Long Name = Battery Temperature
Short Name = Temp
Minimum Value = -40.0
Maximum Value = 80.0
Scale factor = x1
Unit type = C
Equation = SIGNED(A)

NOTE: Torque Pro has a settings menu for temperature units, which overrides Unit type in this PID. You must always set this PID to Unit type C. Then, if you wish to display temp in F units, change the setting in the main settings menu.
### Manage custom OBD2 PIDs

<table>
<thead>
<tr>
<th>PID</th>
<th>Description</th>
<th>Equation</th>
</tr>
</thead>
<tbody>
<tr>
<td>102301</td>
<td>Pack Voltage</td>
<td>$((A*256)+B)/10.0$</td>
</tr>
<tr>
<td>102401</td>
<td>Battery Current</td>
<td>$((B*256)+C)/10.0$</td>
</tr>
<tr>
<td>102401</td>
<td>Current Direction</td>
<td>$A$</td>
</tr>
<tr>
<td>102501</td>
<td>Battery Power</td>
<td>$(A<em>16777216)+(B</em>65536)+(C*256)+D$</td>
</tr>
<tr>
<td>102601</td>
<td>Battery SOC</td>
<td>$A$</td>
</tr>
<tr>
<td>102601</td>
<td>Battery AmpHours</td>
<td>$((C*256)+D)/10.0$</td>
</tr>
<tr>
<td>102601</td>
<td>Battery Fuel</td>
<td>$B$</td>
</tr>
<tr>
<td>102701</td>
<td>Battery Temperature</td>
<td>$\text{SIGNED}(A)$</td>
</tr>
</tbody>
</table>
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5. **Add new displays to dashboard.** Now you can add new displays to the dashboard and select custom values from the list. Follow Torque Pro Help and online forums at [http://torque-bhp.com/forums/](http://torque-bhp.com/forums/) for details on how to use the application to its fullest potential. Here are just a couple of samples of dashboard displays showing battery data from EV Display.