AEM Series 1 ECU's (RS232) to AEM CD-5 & CD-7 Displays

Supported Devices		
AEM 30-1000	AEM 30-1121	AEM 30-1610
AEM 30-1010	AEM 30-1130	AEM 30-1611
AEM 30-1012	AEM 30-1220	AEM 30-1612
AEM 30-1020	AEM 30-1300	AEM 30-1620
AEM 30-1030	AEM 30-1310	AEM 30-1621
AEM 30-1040	AEM 30-1311	AEM 30-1622
AEM 30-1042	AEM 30-1312	AEM 30-1623
AEM 30-1050	AEM 30-1313	AEM 30-1710
AEM 30-1052	AEM 30-1320	AEM 30-1720
AEM 30-1060	AEM 30-1400	AEM 30-1800
AEM 30-1070	AEM 30-1401	AEM 30-1810
AEM 30-1080	AEM 30-1500	AEM 30-1820
AEM 30-1081	AEM 30-1510	AEM 30-1821
AEM 30-1100	AEM 30-1600	AEM 30-1900U
AEM 30-1101	AEM 30-1601	AEM 30-1902U
AEM 30-1110	AEM 30-1602	Mopar Performance P5153528
AEM 30-1120	AEM 30-1603	Mopar Performance P5153608

Required Interface Device

AEM 30-2228, Serial2CAN Adapter, AEM Series 1

Supported Channels

The CD-5 & CD-7 displays support 21 channels transmitted by the AEM Series 1 ECUs:

EngineSpeed (RPM)	ECUAnalogInput11Voltage (Volts)
EngineLoad (%)	ECUAnalogInput13Voltage (Volts)
CoolantTemp (F)	ECUAnalogInput14Voltage (Volts)
IntakeManifoldAirTemp (F)	ECUAnalogInput15Voltage (Volts)
ThrottlePos (%)	ECUAnalogInput16Voltage (Volts)
AFR1 (A/F)	ECUAnalogInput17Voltage (Volts)
AFR2 (A/F)	IntakeManifoldAirPressErrorState (OK/Error)
VehicleSpeed (MPH)	BaroPressErrorState (OK/Error)
ECUBatteryVoltage (Volts)	CoolantTempErrorState (OK/Error)
GearPosCalculated	IntakeManifoldAirTempErrorState (OK/Error)
	ThrottlePosErrorState (OK/Error)

CAN Bus Wiring

To hook the AEM CD-5 & CD-7 to an AEM Series 1 ECU, you first plug the Serial2CAN adaptor into the 9 pin comms connector on the EMS. Then plug the adaptor into the 4 pin connector on the main harness supplied with the dash and the other 4 pin connector into the power harness supplied with the dash. The Red & Black wires from the power harness should be connected to switched, fused 12V power and ground, respectively.
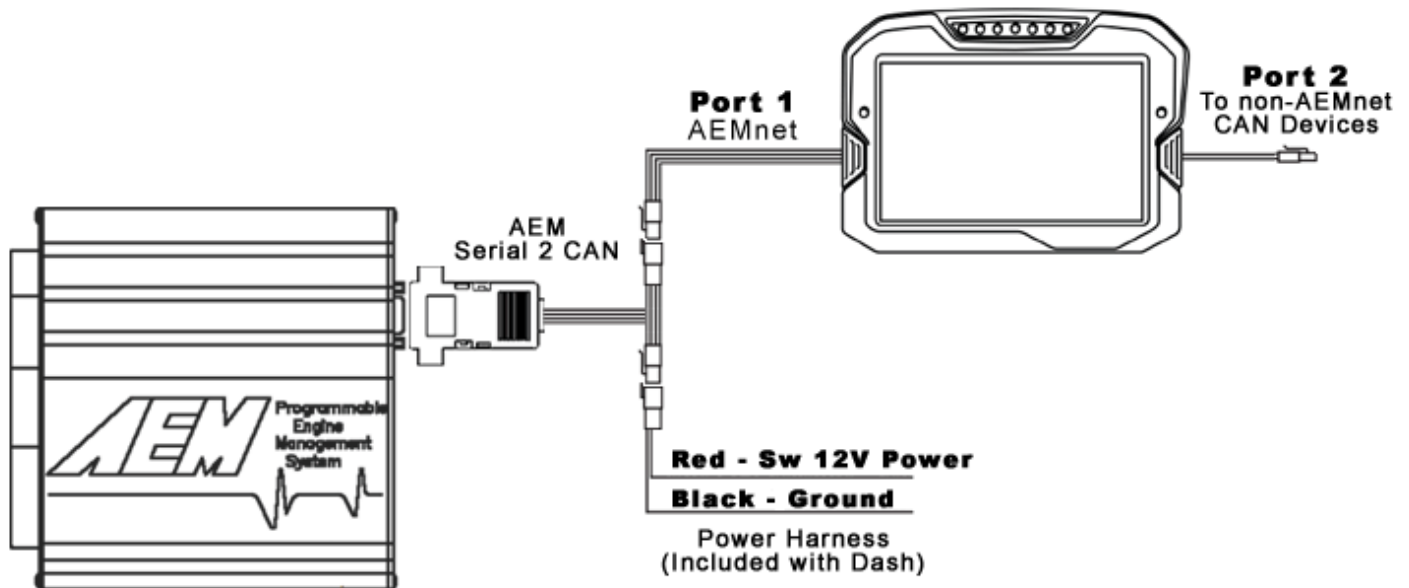

The AEM Serial2CAN adaptor has an internal terminating resistor. As long as the adaptor is on one physical end of the CAN Network and the AEM Display is on the other with its terminating resistor activated then no further action regarding terminating resistors is required on this port.

AEM Series 1 ECU Setup

The Serial Telemetry must be enabled on the Series 1 ECU. This is done using the AEMPro Software.

Note: The serial datastream will only work with version 1.19 or newer firmware. When connected to the EMS, the firmware version is shown in the blue strip at the top of the screen. If your ECU is not running version 1.19 or later, you can download the required files from the aemelectronics.com website.

Open AEM Pro and connect to the EMS. Wait for the EMS to finish downloading. Left click on "VIEW" and select the telemetry wizard from the wizards drop down menu.
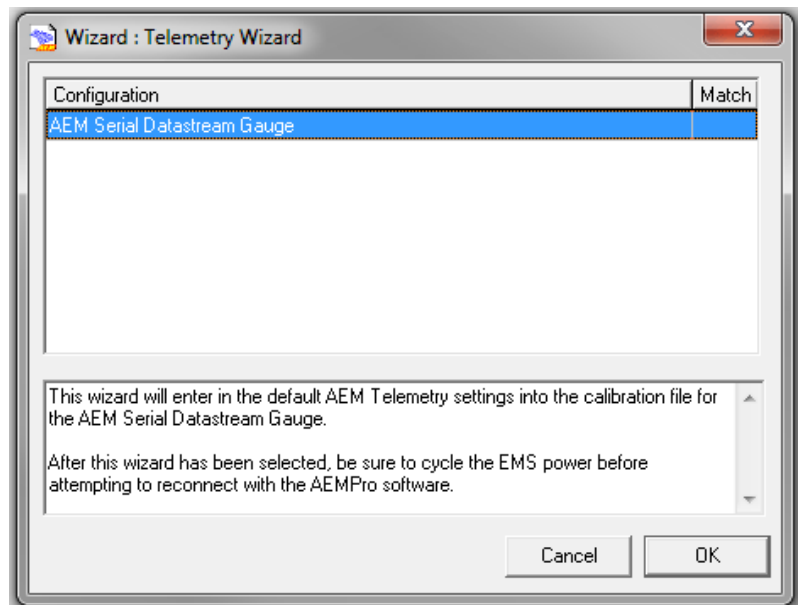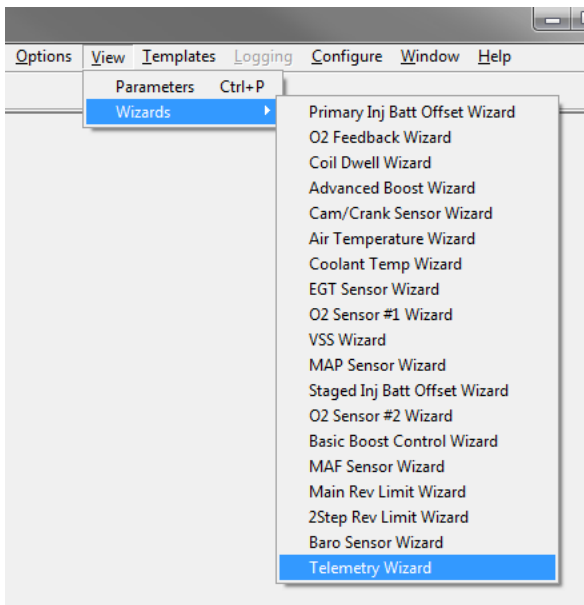
In the telemetry wizard, left click on "AEM Serial Datastream Gauge: and click OK. Close AEM Pro, connect the adaptor to the EMS, and cycle power to the EMS. The EMS is now configured to output data to the gauge.

Since the Serial2CAN adaptor shares the comms port with the PC communications cable, the ECU will always start in PC Comms mode when the power is cycled. If the ECU does not sense communications with a PC immediately it will then revert to data telemetry output. To initialize PC comms after the ECU has switched to telemetry mode you will need to power cycle the ECU.

AEM Setup in DashDesign

The Serial2CAN adaptor makes the Serial output from any AEM Series 1 ECU look like the CAN output of an AEM Series 2 ECU.

So the fastest way to get something working is to use the AEM created setups for the Series 2. With the install of DashDesign2 on your computer there are many different base setups you can choose from.

…\AEM\DashDesign\Setups\App Specific\AEM Series2 & EMS-4

STOP HERE

You only need to continue if you choose to not use the AEM supplied layout and wish to add Series-1 Serial2CAN support to custom or other existing layouts.

Adding Serial2CAN S1 support on different Layouts

If you want to create something from scratch, you can either start with a new dash layout by selecting "File" then "New" in DashDesign2 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 Serial2CAN Series-1 CAN configuration into your setup you select the CAN tab from within Dash Design and choose the CAN Receive tab.

Make sure the port settings are as follows:

Show: "Port 1"   **Baudrate:** 500 kbit/s   **Termination Resistor:** "ON"
M800 Support: "OFF"
Address Mask: "OFF"
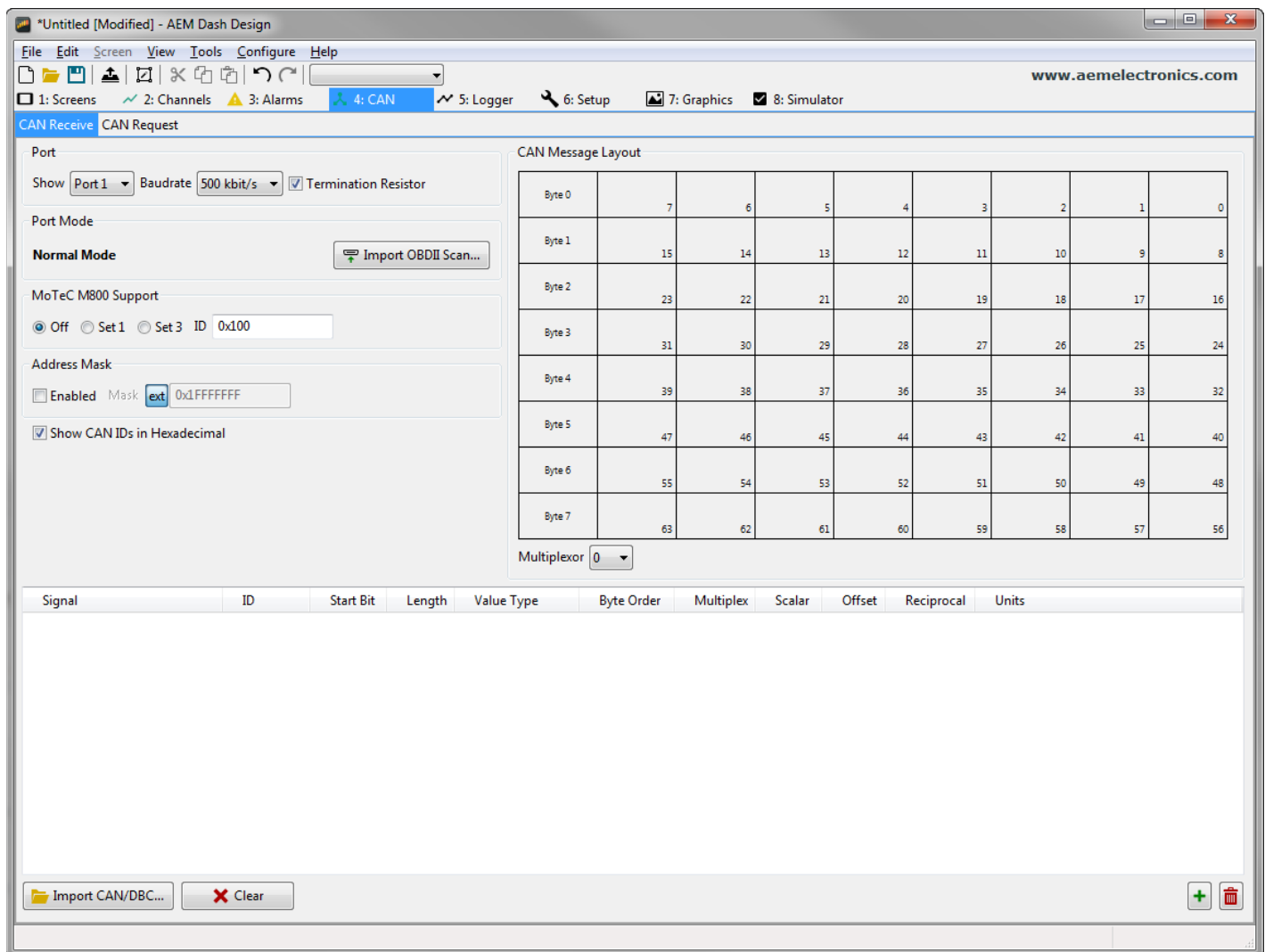
Then click on "Import CAN/DBC" on the lower left and select the Serial2CAN AEM Series 1 CAN setup file; "**S2C_AEMS1ECU_Rev0.dbc**".

The new items will appear in the table. 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.