SETUP GUIDE

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

Supported Devices
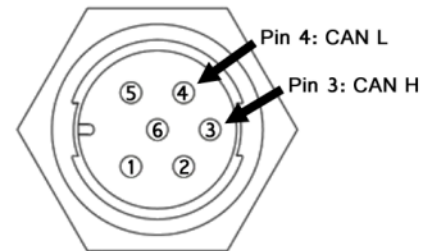
Vi-PEC i44 ECU
Vi-PEC i88 ECU

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.

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It should look something like this when you are done;
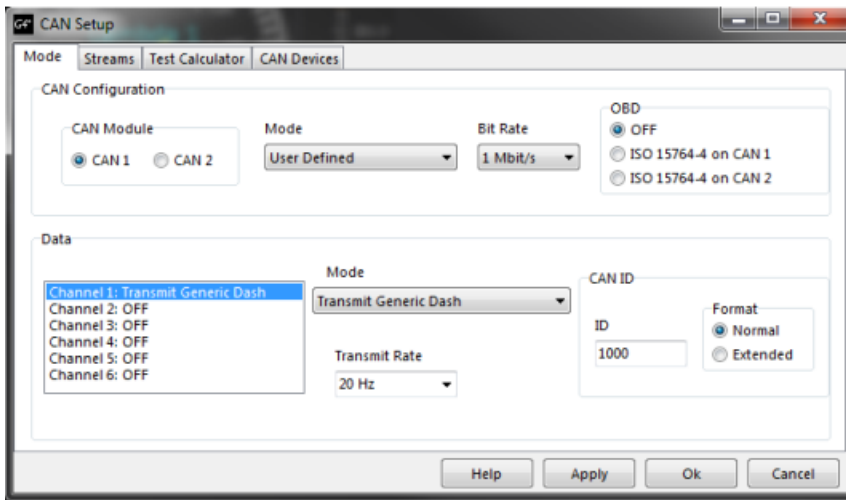
Supported Channels

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

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

This product is legal in California for racing vehicles only and should never be used on public highways. AEM Performance Electronics, 2205 W. 126th Street Unit A, Hawthorne, CA 90250,
Phone: (310) 484-2322 Fax: (310) 484-0152

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CH	Channel Name
16	CamIntakeRBankPos
17	CamExhaustLBankPos
18	CamExhaustRBankPos

CH	Channel Name
34	KnockLevelCyl6
35	KnockLevelCyl7
36	KnockLevelCyl8

CH	Channel Name
52	GP_RPM_Limit2
53	Ethrottle_Limit
54	Cyclic_Idle_Active

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

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Accel Pos (Main) High Volt Error	An V1 Error High Volt	An V13 Error High Volt
Accel Pos (Main) Low Volt Error	An V1 Error Low Volt	An V13 Error Low Volt
Accel Pos (Sub) High Volt Error	An V1 Signal Error	An V13 Signal Error
Accel Pos (Sub) Low Volt Error	An V2 Error High Volt	An V14 Error High Volt
Accel Pos Track Error	An V2 Error Low Volt	An V14 Error Low Volt
IAT Error High Volt	An V2 Signal Error	An V14 Signal Error
IAT Error Low Volt	An V3 Error High Volt	An V15 Error High Volt
IAT Signal Error	An V3 Error Low Volt	An V15 Error Low Volt
MAP Error High Volt	An V3 Signal Error	An V15 Signal Error
MAP Error Low Volt	An V4 Error High Volt	An V16 Error High Volt
MAP Limit	An V4 Error Low Volt	An V16 Error Low Volt
MAP Signal Error	An V4 Signal Error	An V16 Signal Error
ECT Error High Volt	An V5 Error High Volt	An T1 Error High Volt
ECT Error Low Volt	An V5 Error Low Volt	An T1 Error Low Volt
ECT Signal Error	An V5 Signal Error	An T1 Signal Error
TPS Error High Volt	An V6 Error High Volt	An T2 Error High Volt
TPS Error Low Volt	An V6 Error Low Volt	An T2 Error Low Volt
TPS Signal Error	An V6 Signal Error	An T2 Signal Error
TP (Main) not selected	An V7 Error High Volt	An T3 Error High Volt
TP (Sub) not selected	An V7 Error Low Volt	An T3 Error Low Volt
TP Tracking Error	An V7 Signal Error	An T3 Signal Error
TP 2 Tracking Error	An V8 Error High Volt	An T4 Error High Volt
TP 2 (Main) Fault	An V8 Error Low Volt	An T4 Error Low Volt
TP 2 (Sub) Fault	An V8 Signal Error	An T4 Signal Error
TPS (Main) Error High Volt	An V9 Error High Volt	E-Throttle1 Low Ctrl Volt Error
TPS (Main) Error Low Volt	An V9 Error Low Volt	E-Throttle1 Low Volt Error
TPS (Sub) Error High Volt	An V9 Signal Error	E-Throttle1 Max Duty Error
TPS (Sub) Error Low Volt	An V10 Error High Volt	E-Throttle1 Min Duty Error
AP (Main) not selected	An V10 Error Low Volt	E-Throttle1 Curr/Temp Error
AP (Sub) not selected	An V10 Signal Error	E-Throttle1 Pos Ctrl Error
APS CAN Signal Lost	An V11 Error High Volt	E-Throttle2 Low Ctrl Volt Error
GDI Pump Ctrl High Press Fault	An V11 Error Low Volt	E-Throttle2 Low Volt Error
GDI Pump Ctrl Low Press Fault	An V11 Signal Error	E-Throttle2 Max Duty Error
RPM Limit	An V12 Error High Volt	E-Throttle2 Min Duty Error
Analog 5V Supply Error	An V12 Error Low Volt	E-Throttle2 Curr/Temp Error
Aux 17-20 Supply Error	An V12 Signal Error	E-Throttle2 Pos Ctrl Error
Aux 9/10 Volt Supply 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.
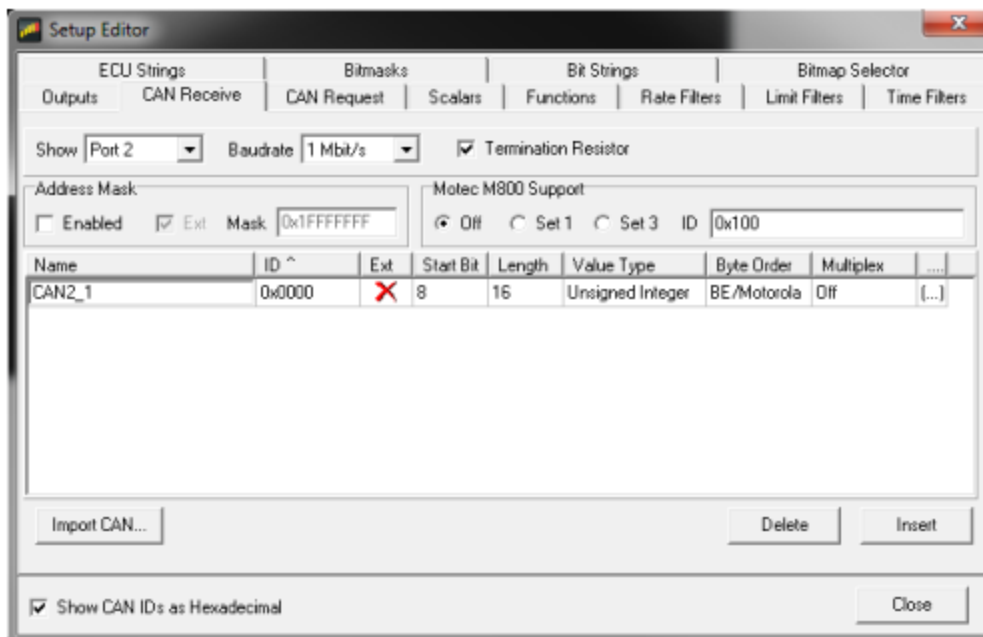
Change the settings to the following:
Show: "Port 2"
Baudrate: 1 Mbit/s
Termination Resistor: "ON"
Address Mask: "OFF"
M800 Support: "OFF"
Then click on "Import CAN" on the lower left and select the Vi-PEC/Link G4+ CAN setup file. The new items will appear in the Outputs tab. They can now be viewed on 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.