

SETUP GUIDE



**V-Net
data**



V-Net Sensor Modules to AEM CD Dash

Supported Devices

- Universal 4 Sensor Analog modules (220-VM-USM)
- IR Tire Temp modules (220-VP-IRXXXX)
- IR Brake Temp modules (220-VP-IRXXXX)
- Exhaust Temp modules (220-VP-JBXXXX)
- Pressure Sensor modules (220-VP-PTXXXX)
- Wheelie Bar Force modules (220-VP-PTXXXX)
- Laser Ride Height modules (220-VP-RIDEHTXX)
- Thermocouple modules (220-VP-TCXXXX)
- Water Temp modules (220-VP-TRXXXX)
- Oil/Trans/Diff Temp modules (220-VP-TRXXXX)
- Air Temp modules (220-VP-TRXXXX)
- MSD GRID Programmable Ignitions

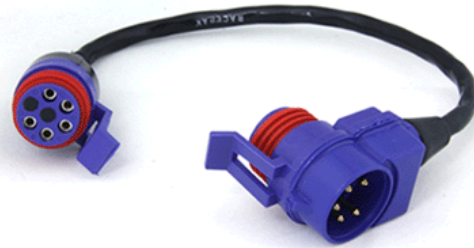
CAN Bus Wiring

Racepak V-Net uses a proprietary connector so to access the CAN data you will need to make an adapter harness.

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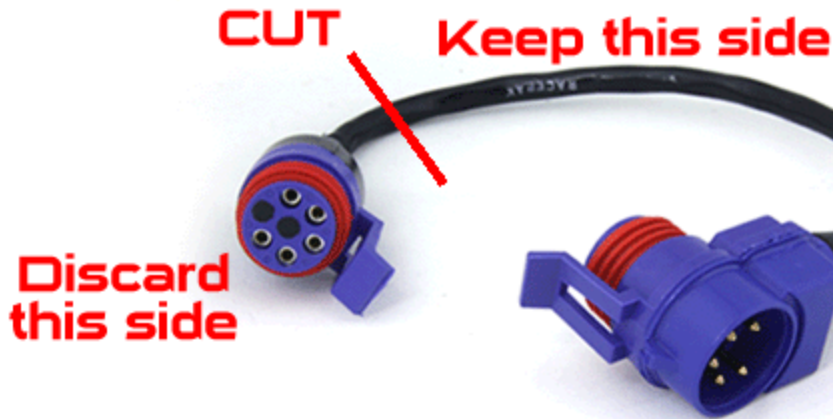


280-CA-VM-TCAPM
V-Net Terminator Cap Male



280-CA-VM-T009
V-Net Cable Tee Connector 9"

Purchase the two items shown above.

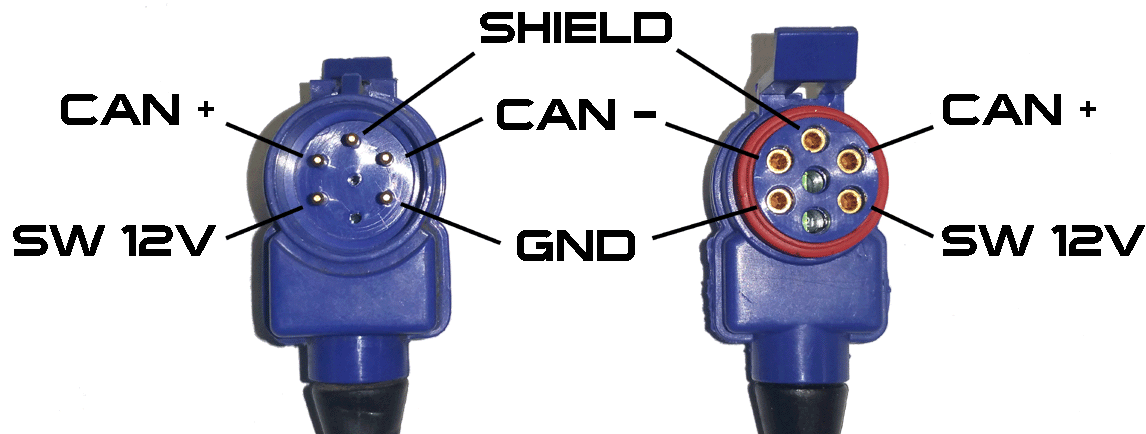


Cut the V-Net Tee cable close to the single connector as shown above. On the Tee side, strip the insulation back approx. 2" harness to expose the wires within.



Adapter harness showing a modified V-Net Tee Connector and the Racepak V-Net termination cap

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WHITE		CAN +
BLACK		CAN -
RED		SW 12V
GREEN		GND
BARE		SHIELD

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.

V-Net CAN+ (WHITE wire) → AEM CD Dash "CAN 2" 2 Pin DTM Pin 1 (Gray wire in twisted/shielded pair)

V-Net CAN- (BLACK wire) → AEM CD Dash "CAN 2" 2 Pin DTM Pin 2 (Black wire in twisted/shielded pair)

V-Net Power (RED wire) → Switched 12v Ignition Power

V-Net Ground (GREEN wire) → Battery Ground

Note that there is a dummy "wire" in there as well, it is also white but is used as filler only. It can be identified by the fact that it is a solid white plastic tube, i.e. it doesn't have a conductor in it. This can simply be cut off in any case.

WARNING!

The 4 colors of the V-Net wires, Red, Black, Green and White are identical to those commonly used for AEMnet CAN connections except the assignments are different! If you connect these wires to an AEMnet connector make sure you pay extremely close attention to the colors as all 4 of them are used by both companies but for different purposes!

DO NOT CONNECT V-Net TO AEMnet BY USING THE SAME COLORS! THEY ARE DIFFERENT AND DAMAGE WILL OCCUR!

Supported Channels

Racepaks V-Net is a comprehensive vehicle network definition that pre-assigns channel names and functions to specific network addresses, called "V-net ID's" by Racepak. Currently 297 of these specific functions have been mapped to the CD-7 and can be accessed for display or logging. V-Net channels not on this list can still be used but you have to enter the ID and Name yourself.

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Group	Function	VNet ID
BrakeSys	VNet_ABSPress	x420
BrakeSys	VNet_BrakePadTempLF	x425
BrakeSys	VNet_BrakePadTempLR	x428
BrakeSys	VNet_BrakePadTempRF	x426
BrakeSys	VNet_BrakePadTempRR	x427
BrakeSys	VNet_BrakePressLine1	x421
BrakeSys	VNet_BrakePressLine2	x422
BrakeSys	VNet_BrakeRotorTempLF	x42B
BrakeSys	VNet_BrakeRotorTempLR	x42E
BrakeSys	VNet_BrakeRotorTempRF	x42C
BrakeSys	VNet_BrakeRotorTempRR	x42D
BrakeSys	VNet_LineLockSolState	x424
Chassis	VNet_RideHeightLF	x3AA
Chassis	VNet_RideHeightLR	x3AC
Chassis	VNet_RideHeightRF	x3AB
Chassis	VNet_RideHeightRR	x3AD
Chassis	VNet_ShockPressLF	x3F0
Chassis	VNet_ShockPressLR	x3F2
Chassis	VNet_ShockPressRF	x3F1
Chassis	VNet_ShockPressRR	x3F3
Chassis	VNet_SteeringAngle	x3A9
Chassis	VNet_SteeringPos	x3A8
Chassis	VNet_TirePressLF	x3CC
Chassis	VNet_TirePressLR	x3CE
Chassis	VNet_TirePressRF	x3CD
Chassis	VNet_TirePressRR	x3CF
Chassis	VNet_TireTemp_IR1	x3E0

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Group	Function	VNet ID
Chassis	VNet_TireTemp_IR2	x3E1
Chassis	VNet_TireTemp_IR3	x3E2
Chassis	VNet_TireTemp_IR4	x3E3
Chassis	VNet_TireTemp_IR5	x3E4
Chassis	VNet_TireTemp_IR6	x3E5
Chassis	VNet_TireTemp_IR7	x3E6
Chassis	VNet_TireTemp_IR8	x3E7
Chassis	VNet_TireTempLFIIn	x3C2
Chassis	VNet_TireTempLFMid	x3C1
Chassis	VNet_TireTempLFOut	x3C0
Chassis	VNet_TireTempLRIn	x3C8
Chassis	VNet_TireTempLRMid	x3C7
Chassis	VNet_TireTempLROut	x3C6
Chassis	VNet_TireTempRFIn	x3C5
Chassis	VNet_TireTempRFMid	x3C4
Chassis	VNet_TireTempRFOut	x3C3
Chassis	VNet_TireTempRRIn	x3CB
Chassis	VNet_TireTempRRMid	x3CA
Chassis	VNet_TireTempRROut	x3C9
Chassis	VNet_WeightLF	x3B0
Chassis	VNet_WeightLR	x3B2
Chassis	VNet_WeightRF	x3B1
Chassis	VNet_WeightRR	x3B3
Chassis	VNet_WheelieBarLeft	x3BD
Chassis	VNet_WheelieBarRight	x3BE
Chassis	VNet_WheelSpeed	x3B8
Chassis	VNet_WheelSpeedLF	x3B4

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Group	Function	VNet ID
Chassis	VNet_WheelSpeedLR	x3B6
Chassis	VNet_WheelSpeedRF	x3B5
Chassis	VNet_WheelSpeedRR	x3B7
CoolingSys	VNet_OilCoolerAirTempIn	x3D2
CoolingSys	VNet_OilCoolerAirTempOut	x3D3
CoolingSys	VNet_OilCoolerOilTempIn	x3D0
CoolingSys	VNet_OilCoolerOilTempOut	x3D1
CoolingSys	VNet_RadCoolantTempIn	x3D4
CoolingSys	VNet_RadCoolantTempOut	x3D5
CoolingSys	VNet_RadiatorAirTempIn	x3D6
CoolingSys	VNet_RadiatorAirTempOut	x3D7
CoolingSys	VNet_TransCoolerAirTempIn	x3DA
CoolingSys	VNet_TransCoolerAirTempOut	x3DB
CoolingSys	VNet_TransCoolerOilTempIn	x3D8
CoolingSys	VNet_TransCoolerOilTempOut	x3D9
DriveTrain	VNet_CannonPress	x348
DriveTrain	VNet_ClutchRPM	x380
DriveTrain	VNet_ConverterPresssure	x39A
DriveTrain	VNet_DriveShaftRPM	x384
DriveTrain	VNet_DriveShaftRPM2	x396
DriveTrain	VNet_Gear	x393
DriveTrain	VNet_Gear1Indicator	x385
DriveTrain	VNet_Gear2Indicator	x386
DriveTrain	VNet_Gear3Indicator	x387
DriveTrain	VNet_Gear4Indicator	x388
DriveTrain	VNet_Gear5Indicator	x389
DriveTrain	VNet_Gear6Indicator	x38A

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Group	Function	VNet ID
DriveTrain	VNet_RearEndTemp	x38B
DriveTrain	VNet_RingGearRPM	x38C
DriveTrain	VNet_TransPress	x38E
DriveTrain	VNet_TransPress2	x399
DriveTrain	VNet_TransTemp	x38F
EFISpecial	VNetEFI_FuelInjPulsewidth	x520
EFISpecial	VNetEFI_FuelInjDutyPrimary	x521
EFISpecial	VNetEFI_AFR1	x539
EFISpecial	VNetEFI_AFR2	x53A
EFISpecial	VNetEFI_ECUVoltage	x52A
EFISpecial	VNetEFI_EngineLoad	x53B
EFISpecial	VNetEFI_IntakeManifoldAirPress	x53C
EFISpecial	VNetEFI_EngineRPM	x532
EFISpecial	VNetEFI_GearPos	x551
EFISpecial	VNetEFI_H2OTemp	x536
EFISpecial	VNetEFI_IntakeTemp	x529
EFISpecial	VNetEFI_TPS	x538
EFISpecial	VNetEFI_VehicleSpeed	x533
Electrical	VNet_BatteryVoltage	x440
Electrical	VNet_RemoteVoltage1	x441
Electrical	VNet_RemoteVoltage2	x442
Electrical	VNet_RemoteVoltage3	x443
Electrical	VNet_RemoteVoltage4	x444
Electrical	VNet_RemoteVoltage5	x445
Engine1	VNet_AirboxPress	x710
Engine1	VNet_BoostPress	x202
Engine1	VNet_CoolantPress	x20A

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Group	Function	VNet ID
Engine1	VNet_CoolantTemp	x209
Engine1	VNet_CrankcasePress	x208
Engine1	VNet_CrankcaseVacuum	x20B
Engine1	VNet_EngineSpeed1	x200
Engine1	VNet_EngineSpeed2	x201
Engine1	VNet_ExhaustPress	x60D
Engine1	VNet_ExhaustTemp	x60E
Engine1	VNet_ExhaustTempCyl1	x601
Engine1	VNet_ExhaustTempCyl2	x602
Engine1	VNet_ExhaustTempCyl3	x603
Engine1	VNet_ExhaustTempCyl4	x604
Engine1	VNet_ExhaustTempCyl5	x605
Engine1	VNet_ExhaustTempCyl6	x606
Engine1	VNet_ExhaustTempCyl7	x607
Engine1	VNet_ExhaustTempCyl8	x608
Engine1	VNet_ExhaustTempCyl9	x609
Engine1	VNet_ExhaustTempCyl10	x60A
Engine1	VNet_ExhaustTempLColl	x60C
Engine1	VNet_ExhaustTempRColl	x60B
Engine1	VNet_HeadTemp	x611
Engine1	VNet_HeadTempLeft	x610
Engine1	VNet_HeadTempRight	x612
Engine1	VNet_IntakeManifoldABSPress	x20E
Engine1	VNet_IntakeManifoldAirPress	x206
Engine1	VNet_IntakeManifoldAirTemp	x207
Engine1	VNet_IntakeManifoldVacuum	x205
Engine1	VNet_OilPress	x204

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Group	Function	VNet ID
Engine1	VNet_OilTemp	x203
Engine1	VNet_ThrottlePos	x30B
FluidLevels	VNet_FuelLevelTank1	x700
FluidLevels	VNet_FuelLevelTank2	x701
FuelSystem	VNet_AFR	x31C
FuelSystem	VNet_AFRCyl1	x310
FuelSystem	VNet_AFRCyl2	x311
FuelSystem	VNet_AFRCyl3	x312
FuelSystem	VNet_AFRCyl4	x313
FuelSystem	VNet_AFRCyl5	x314
FuelSystem	VNet_AFRCyl6	x315
FuelSystem	VNet_AFRCyl7	x316
FuelSystem	VNet_AFRCyl8	x317
FuelSystem	VNet_AFRCyl9	x318
FuelSystem	VNet_AFRCyl10	x319
FuelSystem	VNet_AFRCyl11	x31D
FuelSystem	VNet_AFRCyl12	x31E
FuelSystem	VNet_AFRLeft	x31A
FuelSystem	VNet_AFRRight	x31B
FuelSystem	VNet_FuelFlow	x301
FuelSystem	VNet_FuelFlow2	x320
FuelSystem	VNet_FuelFlowReturn	x302
FuelSystem	VNet_FuelFlowReturn2	x303
FuelSystem	VNet_FuelPress	x339
FuelSystem	VNet_FuelPress_Block	x347
FuelSystem	VNet_FuelPress_Carb	x304
FuelSystem	VNet_FuelPress_Carb2	x33B

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Group	Function	VNet ID
FuelSystem	VNet_FuelPress_Hat	x306
FuelSystem	VNet_FuelPress_Nozzle	x307
FuelSystem	VNet_FuelPress_Pump	x305
FuelSystem	VNet_FuelTemp	x338
GPSSystem	VNet_GPS_Altitude	x82
GPSSystem	VNet_GPS_Course	x84
GPSSystem	VNet_GPS_SatelliteCount	x87
GPSSystem	VNet_GPS_Speed1	x85
GPSSystem	VNet_GPS_Speed2	x89
IgnitionSys	VNet_CamShaftRefRPM	x280
IgnitionSys	VNet_CrankShaftHSRef	x282
IgnitionSys	VNet_CrankShaftRefRPM	x281
IgnitionSys	VNet_DelayBoxRPM1	x283
IgnitionSys	VNet_DelayBoxRPM2	x284
IgnitionSys	VNet_IgnitionTimingCyl1	x270
IgnitionSys	VNet_IgnitionTimingCyl2	x271
IgnitionSys	VNet_IgnitionTimingCyl3	x272
IgnitionSys	VNet_IgnitionTimingCyl4	x273
IgnitionSys	VNet_IgnitionTimingCyl5	x274
IgnitionSys	VNet_IgnitionTimingCyl6	x275
IgnitionSys	VNet_IgnitionTimingCyl7	x276
IgnitionSys	VNet_IgnitionTimingCyl8	x277
IgnitionSys	VNet_IgnitionTriggerRPM	x285
IgnitionSys	VNet_TimingIgnition1	x288
IgnitionSys	VNet_TimingMagneto1	x289
IgnitionSys	VNet_TimingMagneto2	x28A
Indicators	VNet_IndicatorHighBeamState	x681

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Group	Function	VNet ID
Indicators	VNet_IndicatorLeftTurnState	x682
Indicators	VNet_IndicatorRightTurnState	x683
Indicators	VNet_IndicatorParkingBrakeState	x684
Indicators	VNet_IndicatorHighCltTempState	x685
Indicators	VNet_IndicatorLowOilLevelState	x686
Indicators	VNet_IndicatorPremiumFuelState	x687
Indicators	VNet_IndicatorReverseState	x688
Indicators	VNet_IndicatorDetonationState	x689
Indicators	VNet_IndicatorACELevelState	x68A
Indicators	VNet_IndicatorLapMarkerState	x68B
LoggerDefault	VNet_LoggerAnalogIn1	x7C8
LoggerDefault	VNet_LoggerAnalogIn2	x7C9
LoggerDefault	VNet_LoggerAnalogIn3	x7CA
LoggerDefault	VNet_LoggerAnalogIn4	x7CB
LoggerDefault	VNet_LoggerAnalogIn6	x7CD
LoggerDefault	VNet_LoggerAnalogIn7	x7CE
LoggerDefault	VNet_LoggerAnalogIn8	x7CF
LoggerDefault	VNet_LoggerAnalogIn9	x7DA
LoggerDefault	VNet_LoggerAnalogIn10	x7DB
LoggerDefault	VNet_LoggerAnalogIn11	x7DC
LoggerDefault	VNet_LoggerAnalogIn12	x7DD
LoggerDefault	VNet_LoggerAnalogIn13	x7DE
LoggerDefault	VNet_LoggerAnalogIn14	x7DF
LoggerDefault	VNet_LoggerAnalogIn15	x7E0
LoggerDefault	VNet_LoggerAnalogIn16	x7E1
LoggerDefault	VNet_LoggerAnalogIn17	x7E2
LoggerDefault	VNet_LoggerAnalogIn18	x7E3

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Group	Function	VNet ID
LoggerDefault	VNet_LoggerAnalogIn19	x7E4
LoggerDefault	VNet_LoggerAnalogIn20	x7E5
LoggerDefault	VNet_LoggerTemp	x7CC
LoggerDefault	VNet_LoggerVolts	x7D9
LoggerDefault	VNet_LoggerRunTime	x620
NitrousSys	VNet_NitrousBottlePress1	x308
NitrousSys	VNet_NitrousBottlePress2	x30F
NitrousSys	VNet_NitrousBottlePress3	x30E
NitrousSys	VNet_NitrousFuelPress1	x309
NitrousSys	VNet_NitrousFuelPress2	x30A
NitrousSys	VNet_NitrousFuelPress3	x31F
NitrousSys	VNet_NitrousFuelPress4	x33C
MSDGrid	VNetMSD_EngineRPM	x570
MSDGrid	VNetMSD_EngineTiming	x571
MSDGrid	VNetMSD_Launch	x573
MSDGrid	VNetMSD_BurnOut	x574
MSDGrid	VNetMSD_Gear	x575
MSDGrid	VNetMSD_Step1	x576
MSDGrid	VNetMSD_Step2	x577
MSDGrid	VNetMSD_Step3	x578
MSDGrid	VNetMSD_Step4	x579
MSDGrid	VNetMSD_ShiftLight	x57A
MSDGrid	VNetMSD_OutputSw1	x57B
MSDGrid	VNetMSD_RevLimRPM	x57C
MSDGrid	VNetMSD_Step5	x57D
Switches	VNet_Switch1	x180
Switches	VNet_Switch2	x181

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Group	Function	VNet ID
Switches	VNet_Switch3	x182
Switches	VNet_Switch4	x183
Switches	VNet_Switch5	x184
Switches	VNet_Switch6	x185
Switches	VNet_Switch7	x186
Switches	VNet_Switch8	x187
Switches	VNet_Switch9	x188
Switches	VNet_Switch10	x189
Switches	VNet_Switch11	x18A
Switches	VNet_Switch12	x18B
TransController	VNet_TransContrInputRPM	x5E0
TransController	VNet_TransContrOutputRPM	x5E1
TurboSys	VNet_InterCoolerAirTempIn	x33A
TurboSys	VNet_InterCoolerAirTempOut	x321
TurboSys	VNet_InterCoolerTempIn	x322
TurboSys	VNet_InterCoolerTempOut	x323
TurboSys	VNet_TurboLExhaustPressIn	x329
TurboSys	VNet_TurboLExhaustPressOut	x32A
TurboSys	VNet_TurboLExhaustTempIn	x32B
TurboSys	VNet_TurboLExhaustTempOut	x32C
TurboSys	VNet_TurboLOilTempOut	x324
TurboSys	VNet_TurboLPressInlet	x325
TurboSys	VNet_TurboLPressOutlet	x326
TurboSys	VNet_TurboLRPM	x32D
TurboSys	VNet_TurboLTempInlet	x327
TurboSys	VNet_TurboLTempOutlet	x328
TurboSys	VNet_TurboLWastegateDutyCycle	x33D

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Group	Function	VNet ID
TurboSys	VNet_TurboLWastegatePos	x34B
TurboSys	VNet_TurboLWastegateSetpoint	x34A
TurboSys	VNet_TurboRExhaustPressIn	x333
TurboSys	VNet_TurboRExhaustPressOut	x334
TurboSys	VNet_TurboRExhaustTempIn	x335
TurboSys	VNet_TurboRExhaustTempOut	x336
TurboSys	VNet_TurboROilTempOut	x32E
TurboSys	VNet_TurboRPressInlet	x32F
TurboSys	VNet_TurboRPressOutlet	x330
TurboSys	VNet_TurboRRPM	x337
TurboSys	VNet_TurboRTempInlet	x331
TurboSys	VNet_TurboRTempOutlet	x332
TurboSys	VNet_TurboRWastegateDutyCycle	x34C
TurboSys	VNet_TurboRWastegatePos	x34E
TurboSys	VNet_TurboRWastegateSetpoint	x34D
USM	VNet_USMAnalog1	x7B0
USM	VNet_USMAnalog2	x7B1
USM	VNet_USMAnalog3	x7B2
USM	VNet_USMAnalog4	x7B3
VehicleDynamics	VNet_VehicleLateralG	x3A1
VehicleDynamics	VNet_VehicleLongitudinalG	x3A0
VehicleDynamics	VNet_VehicleSpeed	x3BC
VehicleDynamics	VNet_VehicleVerticalG	x3A2
Weather	VNet_AmbientAirTemp	x580
Weather	VNet_BaroPress	x581
Weather	VNet_Humidity	x582
Weather	VNet_TrackTemp	x584

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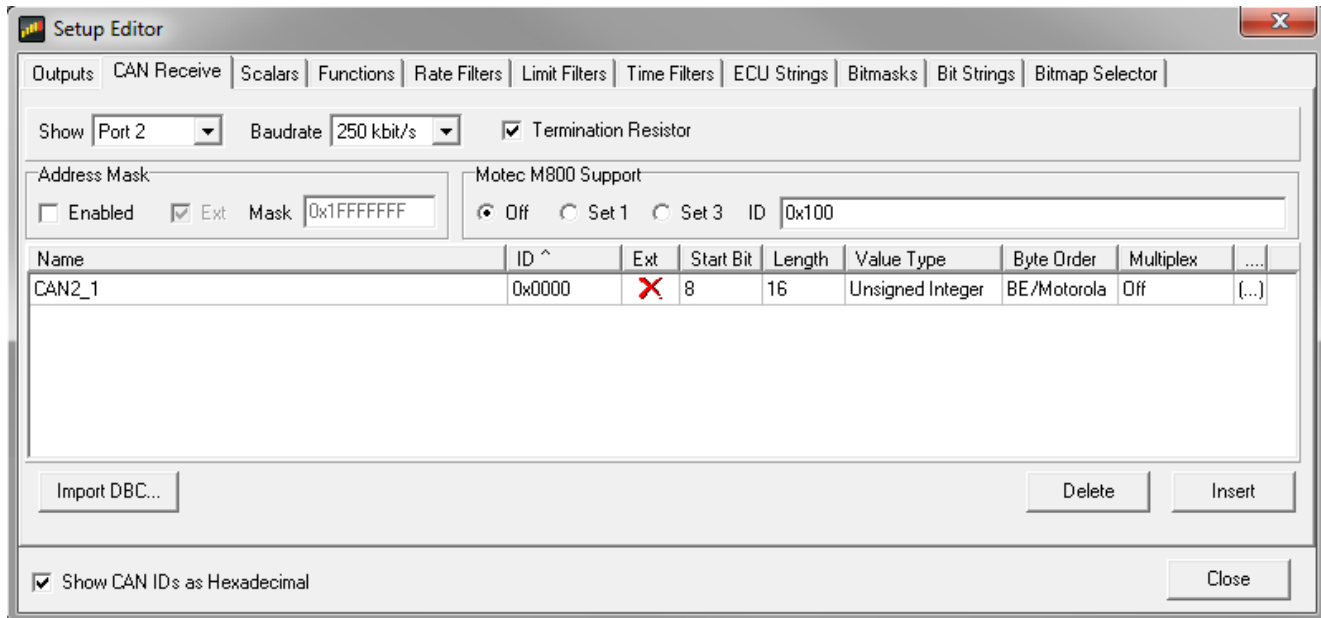
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CAN Setup

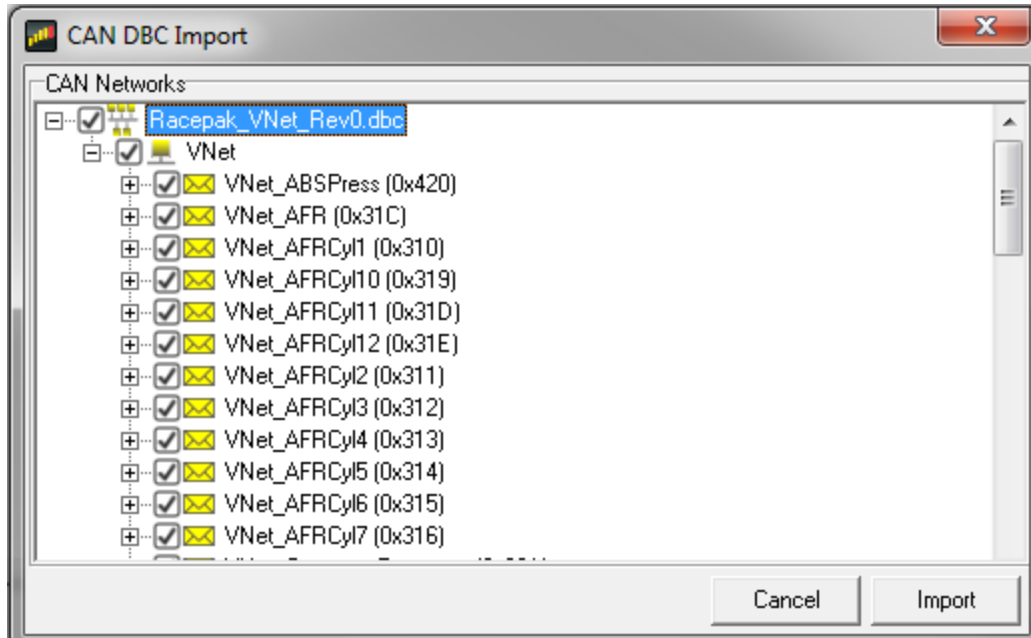
To use this device, the CD-7 must be running firmware 13x19 or later.

To import a specific V-Net ID, you select SETUP then DISPLAY from the main DashDesign menu. Once the dialog box opens you select the "CAN Receive" tab.

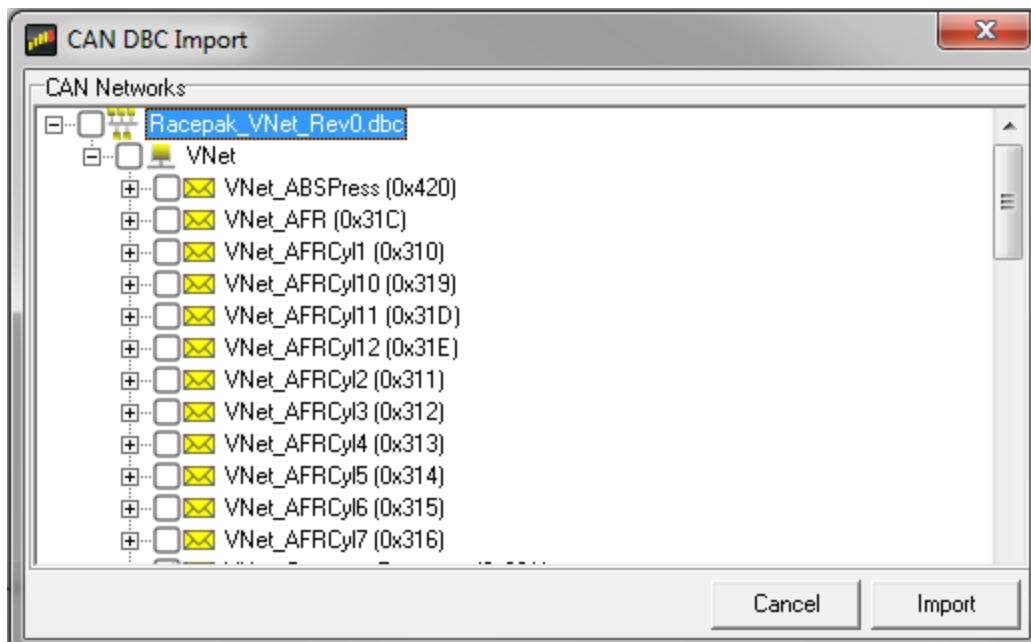


Change the CAN settings to the same as shown above: (Port 2, 250 kbit/s, Term Resistor "ON", Address Mask "OFF" and M800 Support "OFF") Then click on "Import DBC" on the lower left and open the "Racepak_Vnet_Rev0.aemcan" file. A dialog box will open displaying the contents of the dbc file.

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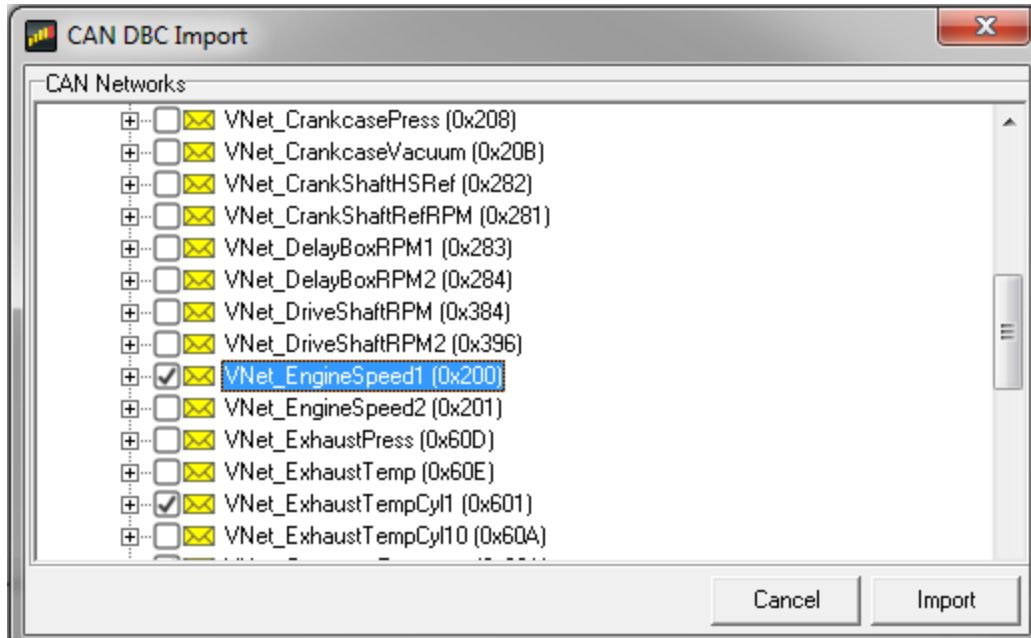


Once the CAN DBC Import dialog box opens with the Racepak Vnet information, Click on the + to see all the available channels.

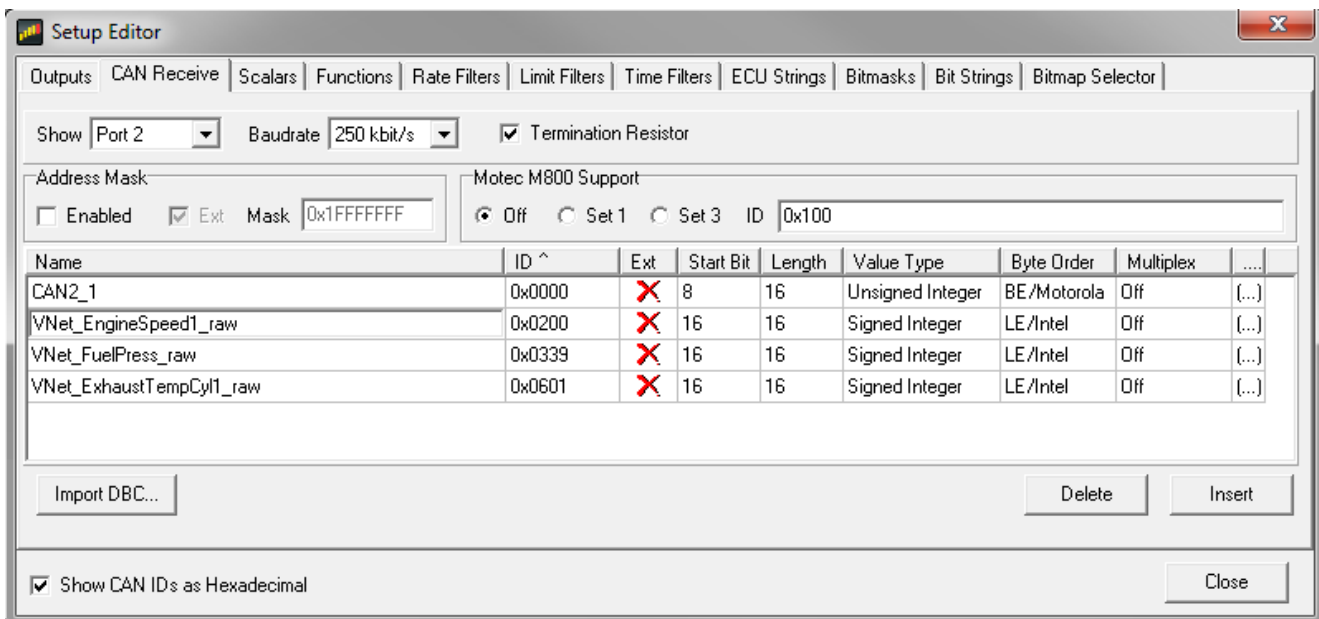


Click on the checkmark at the highest level to globally uncheck all the Vnet channels.

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Scroll down the list until you find the specific channels you want to add and check just those boxes. Click on "Import" in the lower right of the dialog box to import those selected channels. Those raw channels will be added to CAN BUS 2 and the scaling information will be added for each under the Scalars tab.



In this case we selected EngineSpeed, FuelPress and ExhaustTempCyl1.

There will also be final calibrated channels added under the Outputs tab. They can now be viewed on the display or logged. You can rename, filter, or manipulate any of these channels or use them as conditions for alarms.

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