

SETUP GUIDE



RaceGrade RG EGT-8 Interface to CD Dash

Supported Devices

RaceGrade RG EGT-8

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.

RaceGrade RG-TC8 (CAN HIGH) → AEM CD Dash "CAN 2" Pin 1 (CAN 2+), Gray wire in twisted/shielded pair
RaceGrade RG-TC8 (CAN LOW) → AEM CD Dash "CAN 2" Pin 2 (CAN 2-), Black wire in twisted/shielded pair

The AEM CD Dash has a software selectable CAN termination resistor. Each CAN network needs 2 terminating resistors, one at each end. The RaceGrade RG-TC8 does not have an internal terminating resistor and relies on external terminating plugs. If your CD Dash is located at one end of your CAN network simply activate the CD Dash's internal resistor in the AEM DashDesign software. If the CD Dash is not located at one end of the CAN network use external terminating resistors with one placed at either end of the CAN network.

RaceGrade RG-TC8 Software Setup

The RaceGrade Manager Suite software is not required if using a single RaceGrade RG-TC8 unit in its default configuration. The DBC file provided for the RG-TC8 by AEM matches this default configuration.

Supported Channels

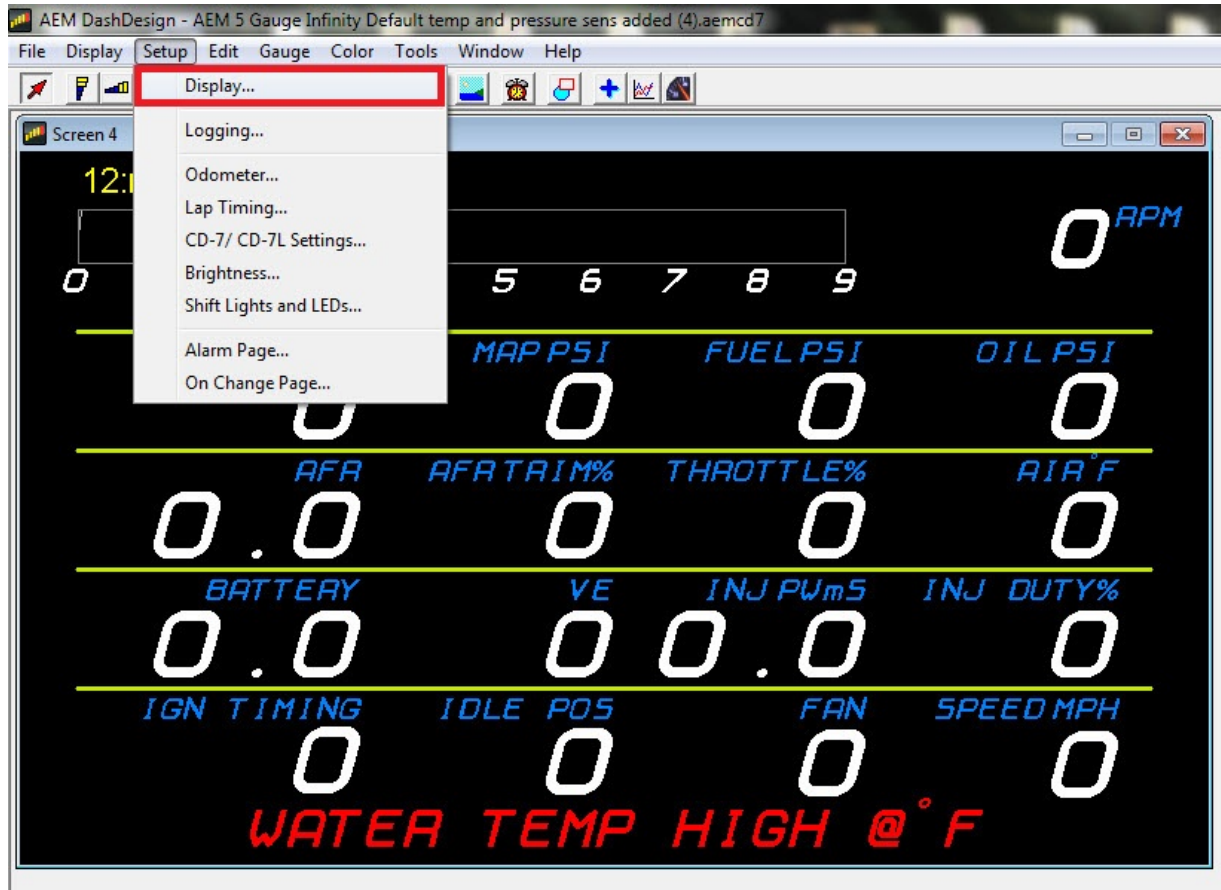
CH	CD Dash CHANNEL NAME
1	Index_raw
2	TC1_raw
3	TC2_raw
4	TC3_raw
5	TC4_raw
6	TC5_raw
7	TC6_raw
8	TC7_raw
9	TC8_raw

Setup in AEM DashDesign

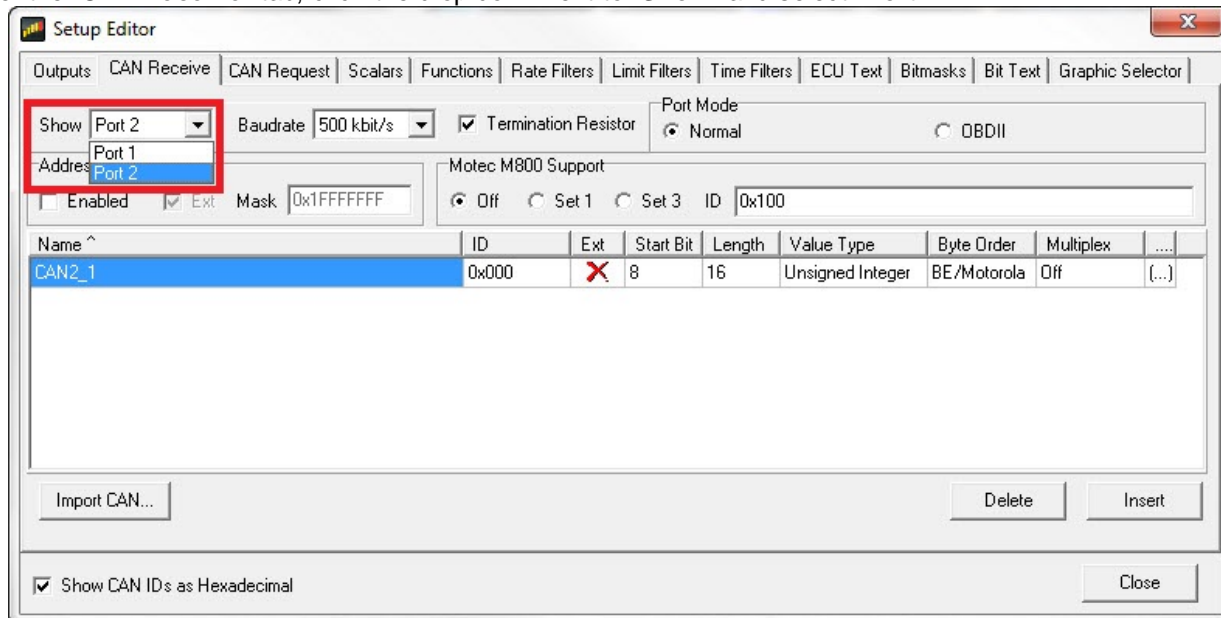
AEM has provided some pre-configured layouts that can be easily adapted to accept, display, and log (if using CD Dash that supports logging) the CANbus channel data from the RaceGrade RG-TC8. The following steps will show you how to quickly setup your TC8 to work with an existing AEM DashDesign Layout.

1. Visit www.aemelectronics.com/forum and scroll down to the CD Dash forum. This is a great place to find answers to all AEM Dash related questions you may have.
2. Open your layout in AEM dashdesignDashDesign.
3. Click the “**Setup**” drop down and then select “**Display...**”.

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4. Under the **"CAN Receive"** tab, click the drop down next to **"Show"** and select **"Port 2"**



5. Under the **"CAN Receive"** tab, select **"Import CAN..."**

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Setup Editor

Outputs | CAN Receive | CAN Request | Scalars | Functions | Rate Filters | Limit Filters | Time Filters | ECU Text | Bitmasks | Bit Text | Graphic Selector

Show Port 1 Baudrate 500 kbit/s Termination Resistor Port Mode Normal OBDII

Address Mask Enabled Ext Mask 0x1FFFFFFF Motec M800 Support Off Set 1 Set 3 ID 0x100

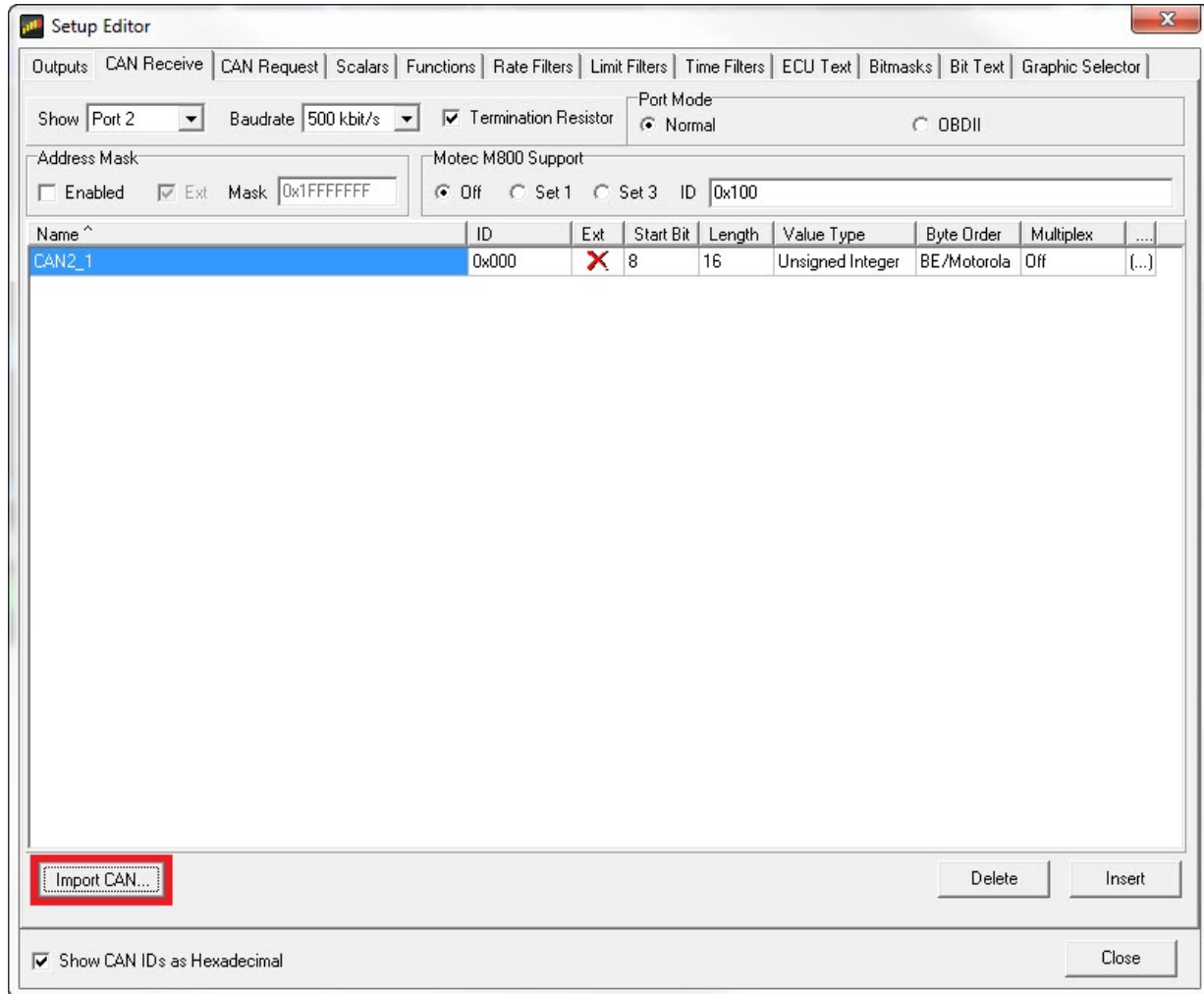
Name ^	ID	Ext	Start Bit	Length	Value Type	Byte Order	Multiplex	...
AFR1_raw	0x01F0A003	✓	0	8	Unsigned Integer	BE/Motorola	Off	(...)
AFR1ControlTrim_raw	0x01F0A006	✓	8	8	Unsigned Integer	BE/Motorola	Off	(...)
AFRTarget_raw	0x01F0A004	✓	40	8	Unsigned Integer	BE/Motorola	Off	(...)
BoostControlTarget_raw	0x01F0A008	✓	8	16	Unsigned Integer	BE/Motorola	Off	(...)
CoolantFan1State_raw	0x01F0A004	✓	49	1	Unsigned Integer	BE/Motorola	Off	(...)
CoolantTemp_raw	0x01F0A000	✓	56	8	Signed Integer	BE/Motorola	Off	(...)
CoolantTempErrorState_raw	0x01F0A008	✓	57	1	Unsigned Integer	BE/Motorola	Off	(...)
ECUBatteryVoltage_raw	0x01F0A003	✓	56	16	Unsigned Integer	BE/Motorola	Off	(...)
EngineSpeed_raw	0x01F0A000	✓	8	16	Unsigned Integer	BE/Motorola	Off	(...)
EngineVolumetricEfficiency_raw	0x01F0A004	✓	16	8	Unsigned Integer	BE/Motorola	Off	(...)
FuelInj1Pulsewidth_raw	0x01F0A006	✓	0	8	Unsigned Integer	BE/Motorola	Off	(...)
FuelInjDutyPrimary_raw	0x01F0A006	✓	16	8	Unsigned Integer	BE/Motorola	Off	(...)
FuelPresErrorState_raw	0x01F0A008	✓	58	1	Unsigned Integer	BE/Motorola	Off	(...)
FuelPress_raw	0x01F0A004	✓	24	8	Unsigned Integer	BE/Motorola	Off	(...)
GearPosCalculated_raw	0x01F0A003	✓	32	8	Unsigned Integer	BE/Motorola	Off	(...)
GPS_Altitude_raw	0x000C0001	✓	24	16	Signed Integer	BE/Motorola	Off	(...)
GPS_Course_raw	0x000C0001	✓	40	16	Unsigned Integer	BE/Motorola	Off	(...)
GPS_Latitude_raw	0x000C0000	✓	24	32	IEEE Float	BE/Motorola	Off	(...)
GPS_Longitude_raw	0x000C0000	✓	56	32	IEEE Float	BE/Motorola	Off	(...)
GPS_SatelliteCount_raw	0x000C0001	✓	48	8	Unsigned Integer	BE/Motorola	Off	(...)
GPS_Speed_raw	0x000C0001	✓	8	16	Unsigned Integer	BE/Motorola	Off	(...)
GPS_Valid_raw	0x000C0001	✓	56	8	Unsigned Integer	BE/Motorola	Off	(...)
IgnitionTiming_raw	0x01F0A003	✓	40	8	Unsigned Integer	BE/Motorola	Off	(...)
IntakeManifoldAirPress_raw	0x01F0A004	✓	8	16	Unsigned Integer	BE/Motorola	Off	(...)
IntakeManifoldAirPressErrorState_raw	0x01F0A008	✓	61	1	Unsigned Integer	BE/Motorola	Off	(...)
IntakeManifoldAirTemp_raw	0x01F0A000	✓	48	8	Signed Integer	BE/Motorola	Off	(...)
IntakeManifoldAirTempErrorState_raw	0x01F0A008	✓	62	1	Unsigned Integer	BE/Motorola	Off	(...)

Import CAN... Delete Insert

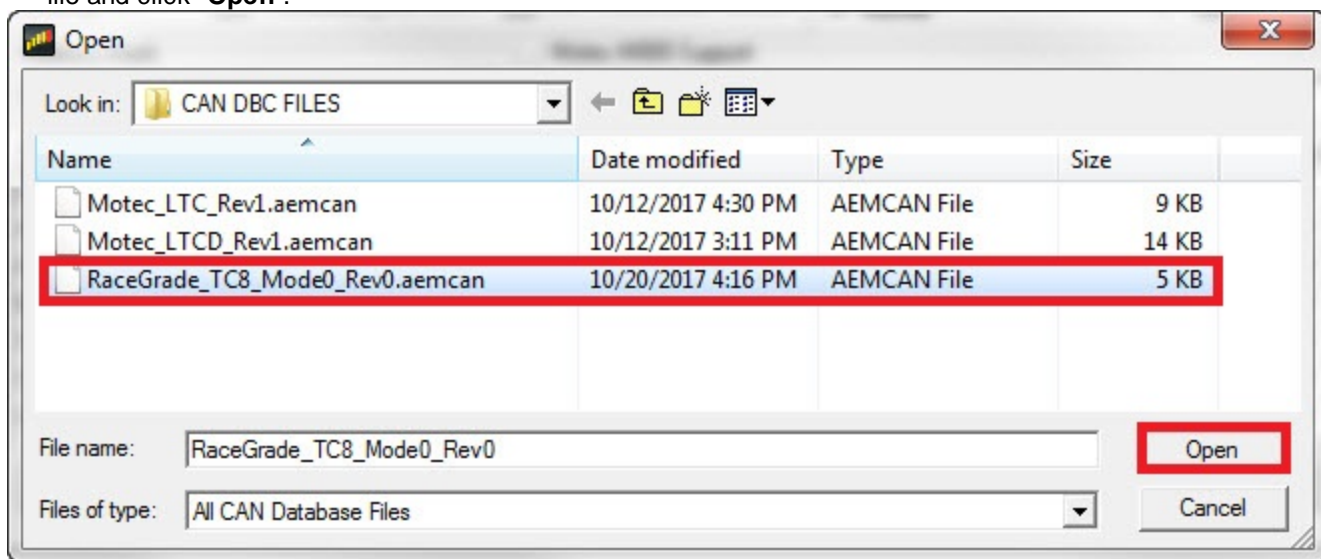
Show CAN IDs as Hexadecimal Close

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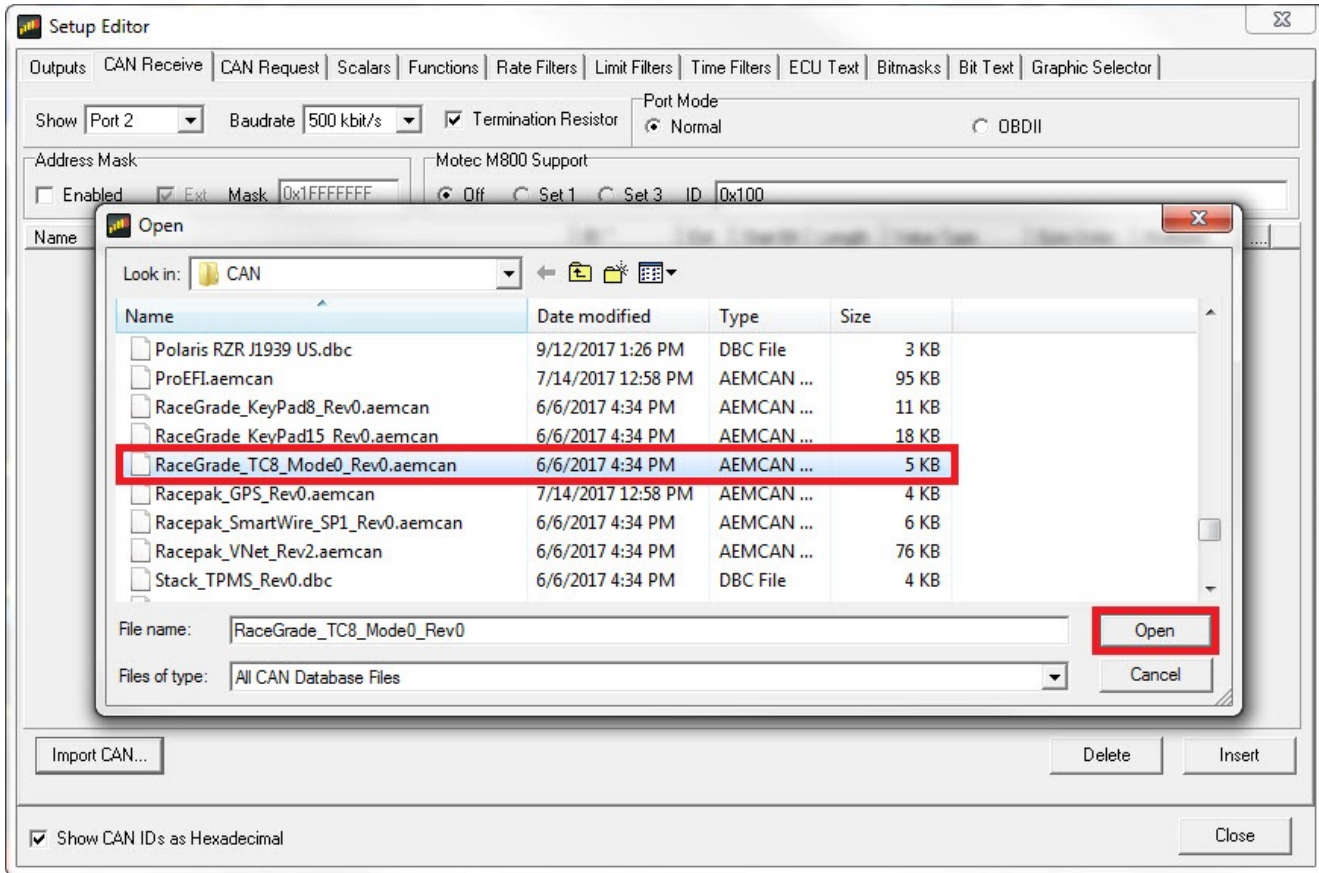
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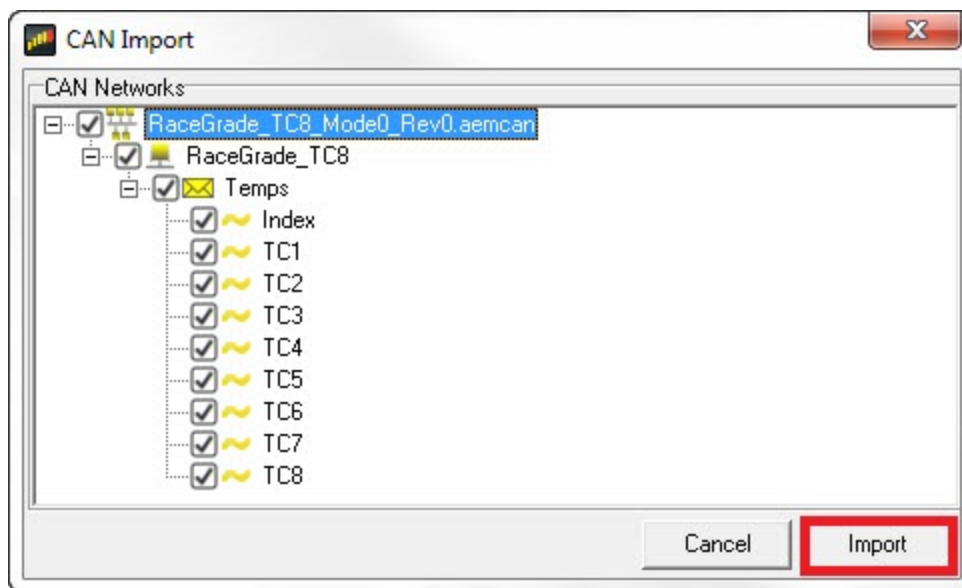
6. Navigate to the .aemcan (dbc.aemcan file for your application.) file you downloaded in step two. Select the file and click **“Open”**.



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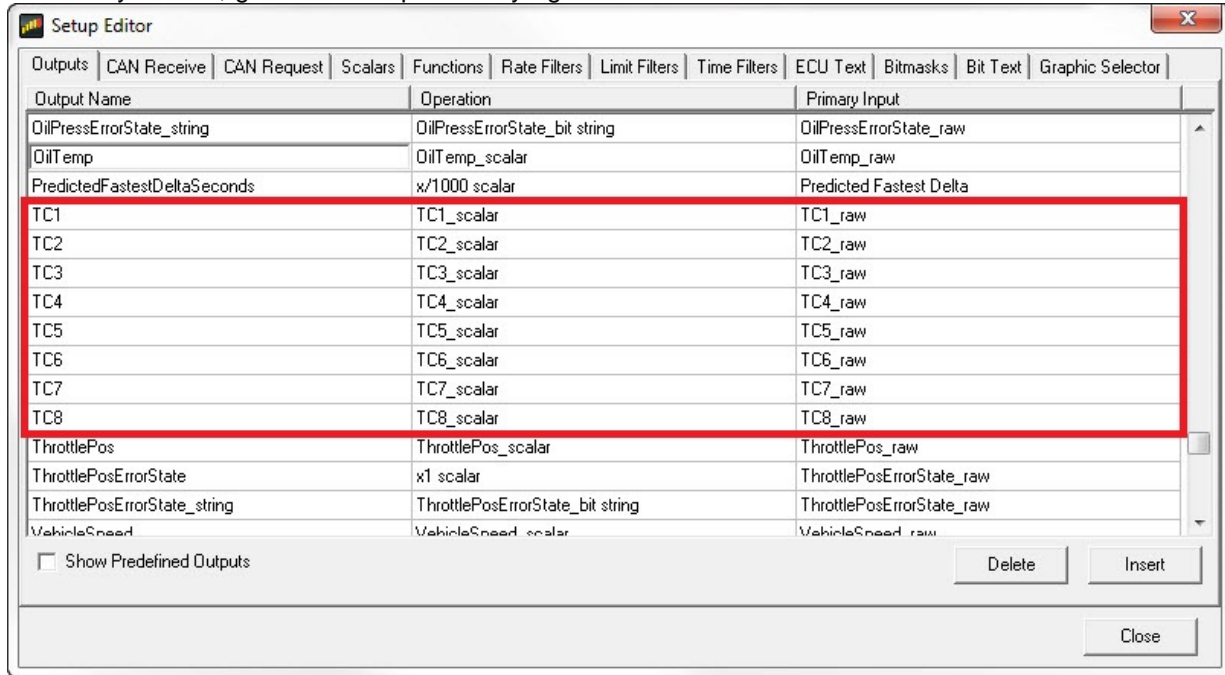
7. In the “CAN Import” window you can may expand the drop downs and see all of the available CAN channels for your device. You may can choose to import all of the channels available or you may select only the channels you wish to display. For this example, I will include all available channels are selected. Unused channels can easily be deleted after completing the setup of your CD Dash. Once you have selected the channels you wish to import, click “**Import**”.



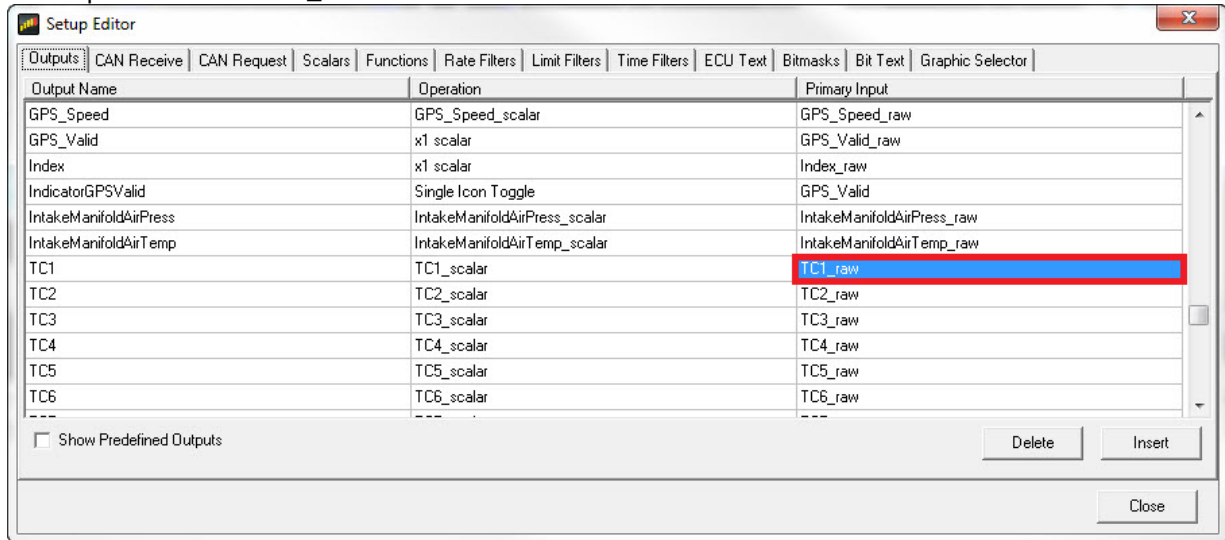
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8. In the “**Setup Editor**” under the “**Outputs**” tab, check to make sure the channels you selected to import are present. If they are not, go back to step 4 and try again.

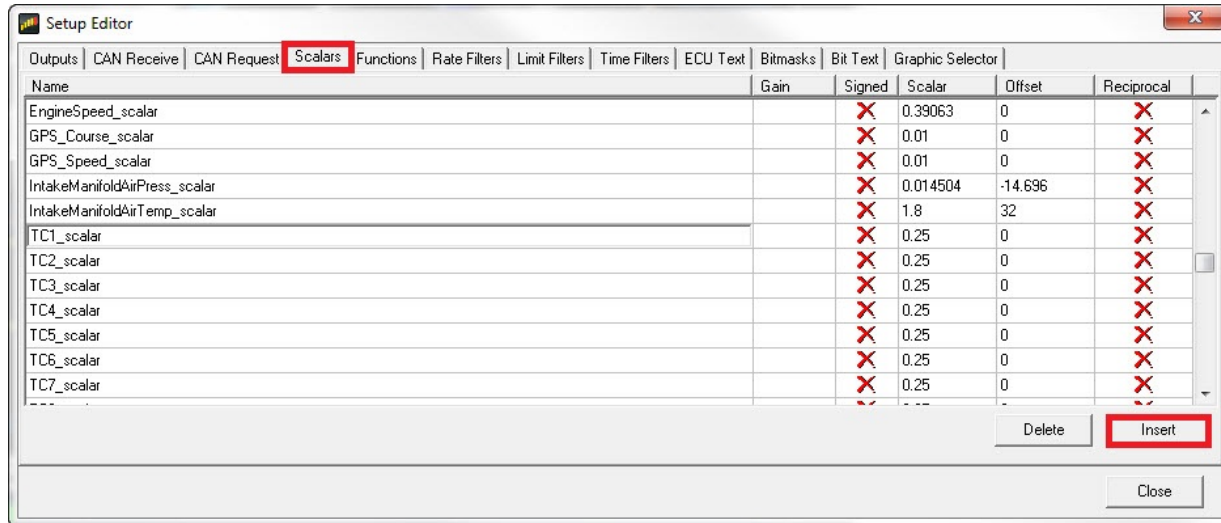


9. Find the output “**TC1**” and check that the Primary Input is “**TC1_raw**”. If it is not, change it now. If setting up “**TC2**” the input should be “**TC2_raw**” and so on.

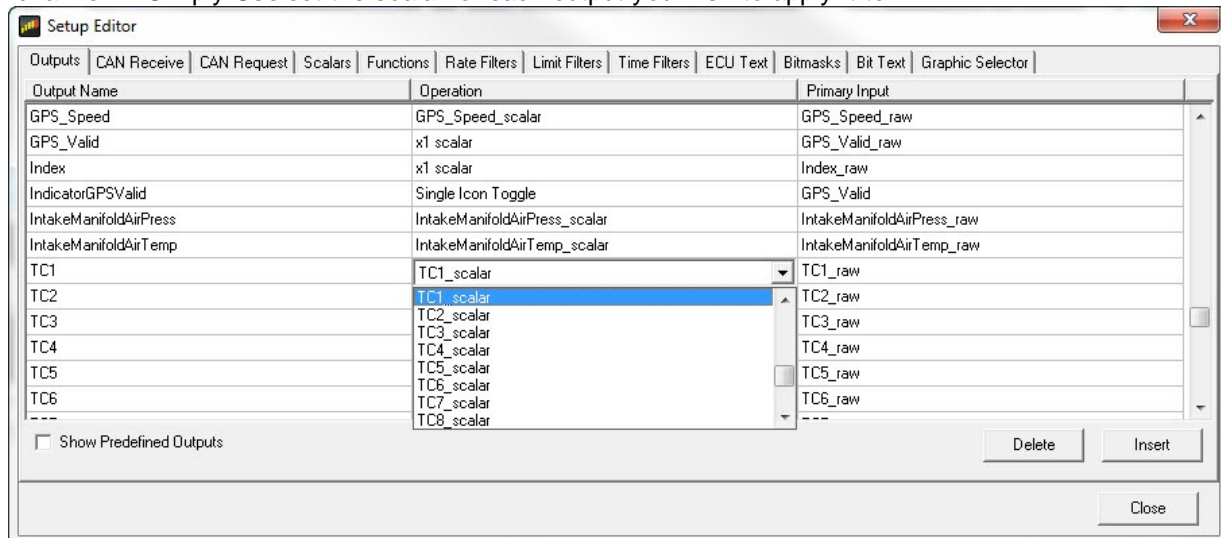


10. The correct scalar should be automatically set when you imported the .aemcan file. If you want to use the default scalar and not create a custom one, skip ahead to step 11. The software automatically creates one scalar for each of the TC8’s channels when the .aemcan file is imported. If the selected scalars are not correct for your application you may change the scalar to a custom one. To create a custom scalar, go to the “**Scalars**” tab in the “**Setup Editor**” window. Select “**Insert**” and create a name for your new scalar. Once named, enter the correct scalar value and offset.

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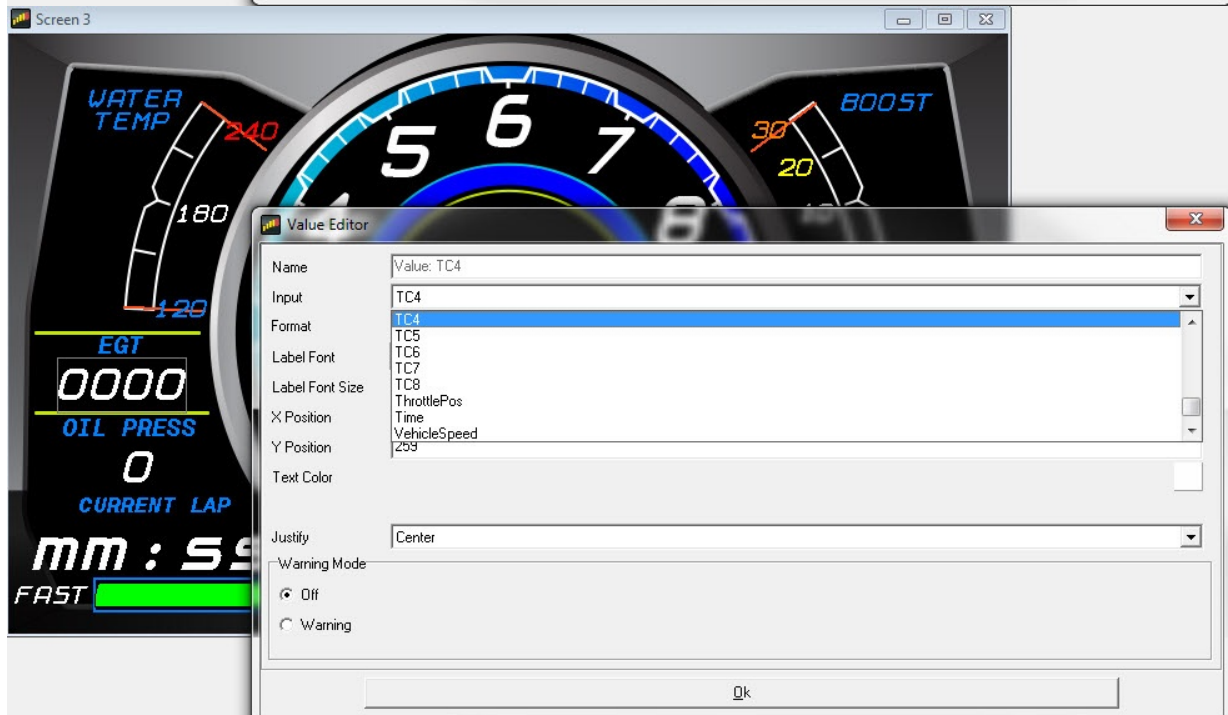
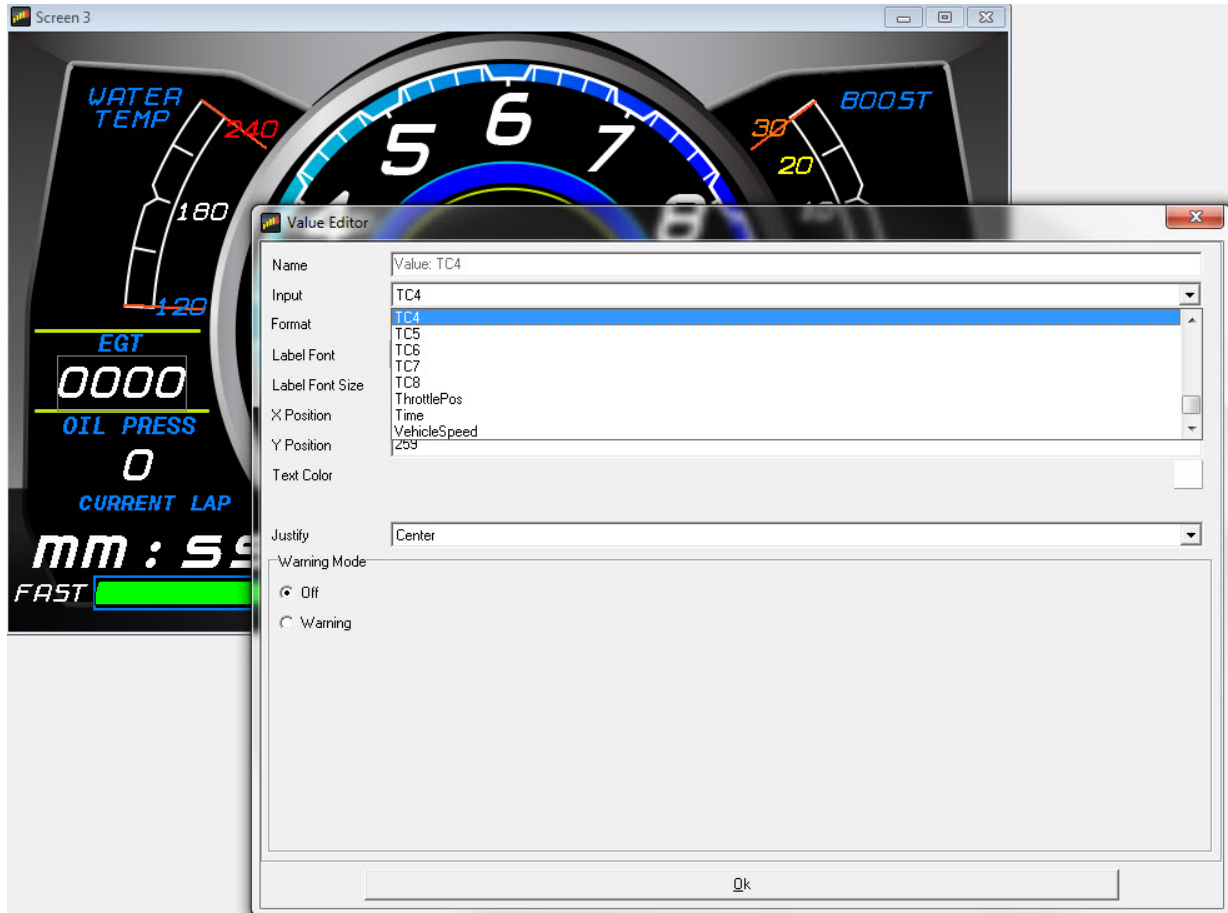


11. Select the scalar you created for the channels you wish to apply it to. Go to the “**Outputs**” tab. Under the “**Operation**” column for your channel, select the new scalar. You do not need to make a different scalar for each channel. . Simply Sselect the scalar for each output you wish to apply it to.



12. Open a page in your layout that displays EGT. Double click on the EGT value or on the needle/bar graph associated with the data from the TC8. This will open the “**Value Editor**”, “**Dynamic Needle Gauge Editor**” or “**Bar Editor**” window depending on how you wish to display the data. Click on the “**Input**” drop down and select the channel “**TC1**” or the channel you created. Click “**OK**”.

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13. Save the layout. Once the layout has been saved, connect the dash to your computer and press "**Ctrl+U**" or "**File**" > "**Upload to Display...**" Once the upload has completed is complete, you may unplug the CD dash from the computer. You should now be able to view the EGT values reported by your RaceGrade TC8 on the AEM CD-7 Dash display.