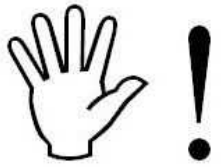
Instruction Manual

PERFORMANCE ELECTRONICS

P/N 30-3902
2001-2005 Porsche 996 Turbo
Manual Transmission
Plug & Play Adapter Harness



STOP!

THIS PRODUCT HAS LEGAL RESTRICTIONS.
READ THIS BEFORE INSTALLING/USING!

WARNING! THIS IS A RACE ONLY PRODUCT MANUFACTURED AND SOLD FOR INSTALLATION ON VEHICLES DESIGNED TO BE USED SOLELY FOR COMPETITION PURPOSES. ONCE THIS PART IS INSTALLED, THE VEHICLE MAY NEVER BE USED, OR REGISTERED OR LICENSED FOR USE, ON A PUBLIC ROAD OR HIGHWAY. IF YOU INSTALL THIS PART ON YOUR VEHICLE AND USE THE VEHICLE ON A PUBLIC ROAD OR HIGHWAY, YOU WILL VIOLATE THE CLEAN AIR ACT AND MAY BE SUBJECT TO PERSONAL CIVIL OR CRIMINAL LIABILITY, INCLUDING FINES OF UP TO $4,819 PER DAY.

IT IS THE RESPONSIBILITY OF THE INSTALLER AND/OR USER OF THIS PRODUCT TO ENSURE THAT IT IS USED IN COMPLIANCE WITH ALL APPLICABLE LAWS AND REGULATIONS. IF THIS PRODUCT WAS PURCHASED IN ERROR, DO NOT INSTALL AND/OR USE IT. THE PURCHASER MUST ARRANGE TO RETURN THE PRODUCT FOR A FULL REFUND.

THIS POLICY ONLY APPLIES TO INSTALLERS AND/OR USERS WHO ARE LOCATED IN THE UNITED STATES; HOWEVER CUSTOMERS WHO RESIDE IN OTHER COUNTRIES SHOULD ACT IN ACCORDANCE WITH THEIR LOCAL LAWS AND REGULATIONS.

WARNING!

Improper installation and/or adjustment of this product can result in major engine/vehicle damage. For technical assistance visit our dealer locator to find a professional installer/tuner near you.

Note: AEM holds no responsibility for any engine damage or personal injury that results from the misuse of this product, including but not limited to injury or death.

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OVERVIEW

The 30-3902 AEM Infinity Adapter Kit was designed for the 2001-2005 Porsche 996 Turbo with manual transmission. This is a true standalone system that eliminates the use of the factory Porsche DME (ECU). The use of this adapter makes the kit “plug and play” so no cutting or splicing wires is necessary. The base configuration files available for the Infinity EMS are starting points only and will need to be modified for every specific application. Included in these instructions are descriptions of important differences between using the factory Porsche DME and using the AEM Infinity ECU.

The available AEM Infinity EMS part numbers for this adapter kit are:

- 30-7109 INFINITY 708

NOTE: The Porsche Infinity 708 EMS has 6 ignition coil outputs and 10 injector outputs.

GETTING STARTED

Refer to the **10-7100 for EMS 30-7100 Infinity Quick Start Guide** for additional information on getting the engine started with the Infinity EMS. Porsche 996 Turbo base sessions are located in C:\Documents\AEM\Infinity Tuner\Sessions\Base Sessions

DOWNLOADABLE FILES

Files can be downloaded from www.aeminfinity.com. An experienced tuner must be available to configure and manipulate the data before driving can commence. The Quick Start Guide and Full Manual describe the steps for logging in and registering at www.aeminfinity.com. These documents are available for download in the Support section of the AEM Electronics website: http://www.aemelectronics.com/products/support/instructions

Downloadable files for 2001-2005 Porsche 996 Turbo

- 7109-XXXX Infinity 708 Porsche 996 Turbo (XXXX = serial number)

NOTE: The Flash Enable connector (described in the following pages) MUST be “jumped” in order to connect to the Infinity and load the initial firmware file. Subsequent firmware upgrades will not require this step.

- **Ignition key OFF**
- **Insert zip-tied jumper shunt connector into Flash Enable connector**
- **Ignition key ON (RUN position)**
- **Infinity Tuner | Target | Upgrade Firmware… | Upload downloaded .pakgrp file**
- **Disconnect Flash Enable jumper connector**
- **Infinity Tuner | File | Import Calibration Data | Select appropriate base session file**

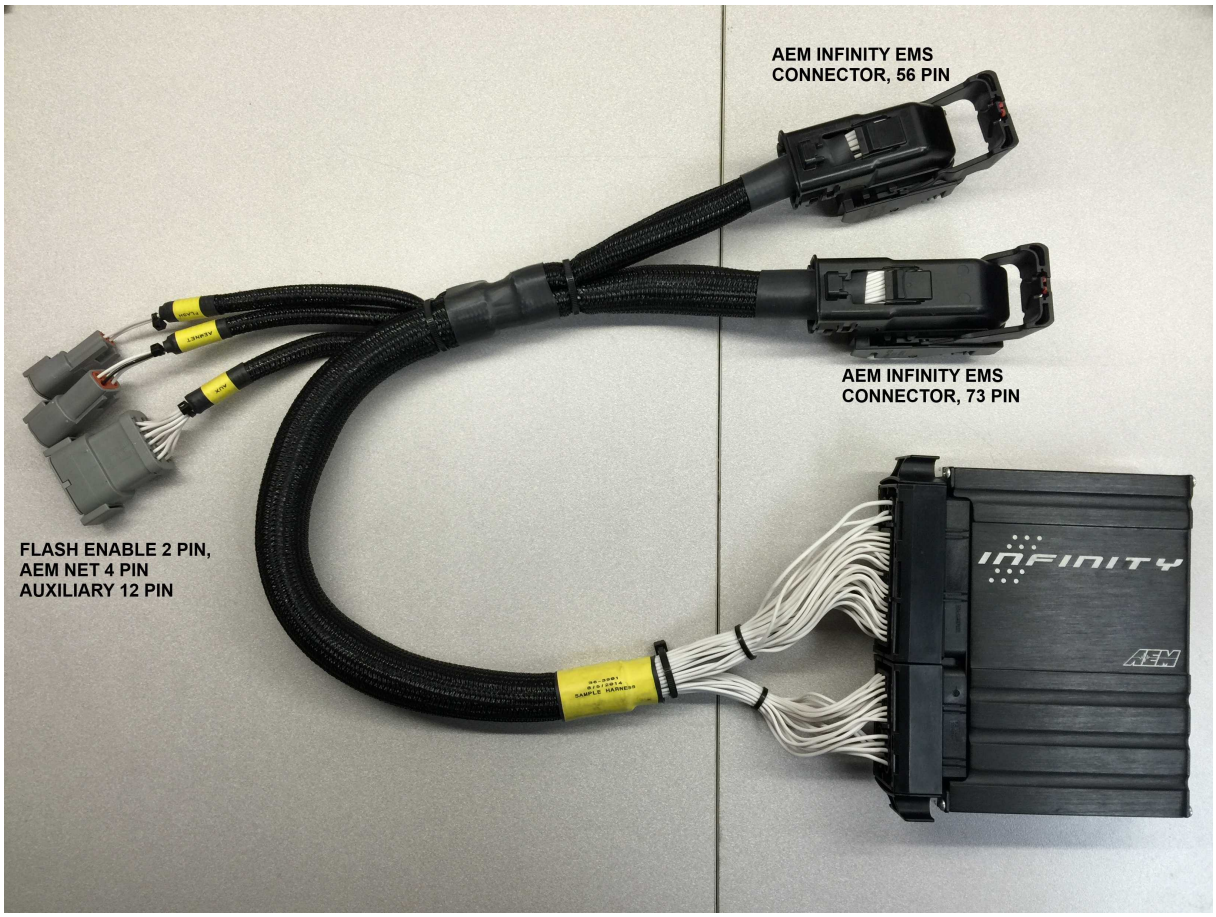
INFINITY CONNECTORS

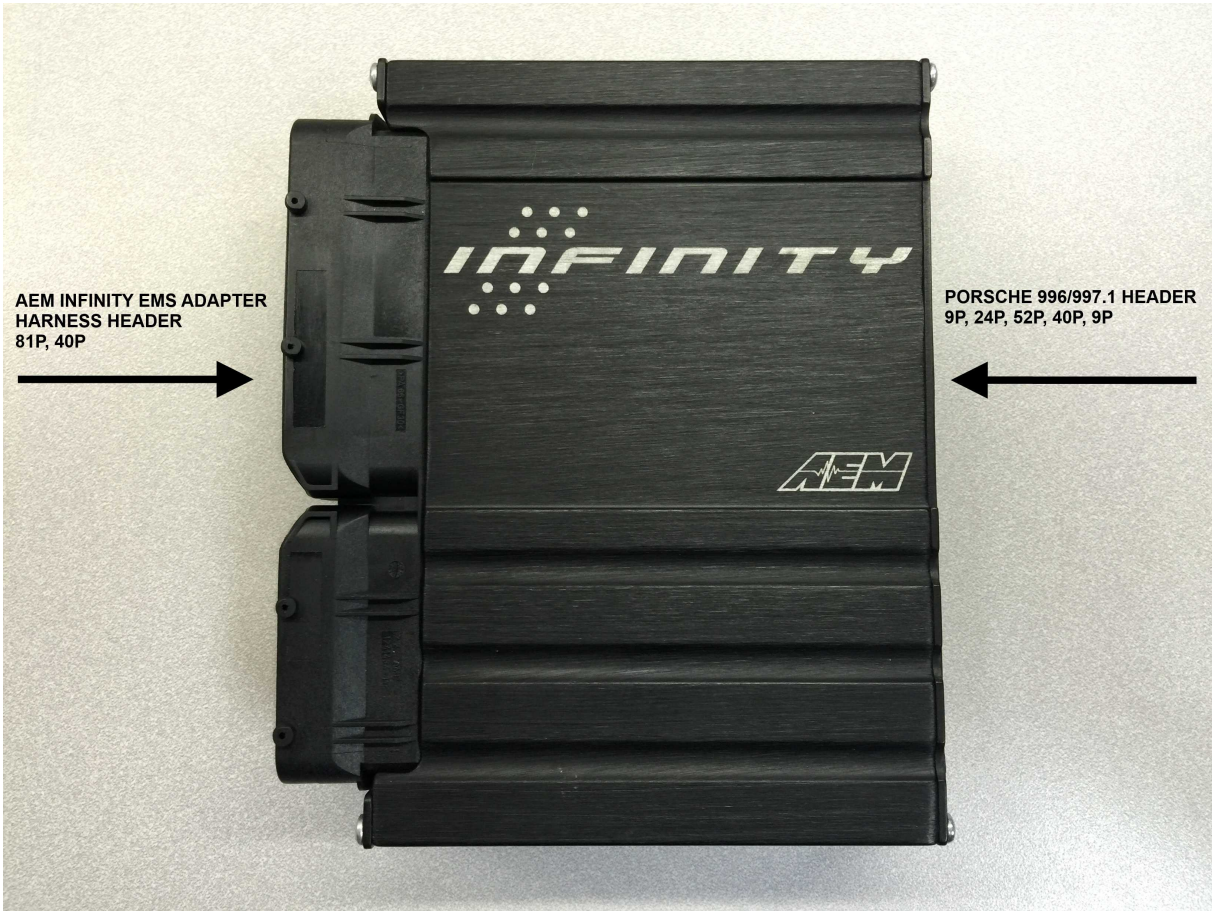
The AEM Infinity EMS uses the MX123 Sealed Connection System from Molex. AEM strongly recommends that users become familiar with the proper tools and procedures for working with these high density connectors before attempting any modifications. The entire Molex MX123 User Manual can be downloaded direct from Molex at:

http://www.molex.com/mx_upload/family//MX123UserManual.pdf

INFINITY ADAPTER HARNESS

Included with the 996 Turbo kit is a harness and adapter interface. These are used to make the connection between the AEM Infinity EMS and the Porsche wiring harness plug and play. This is depicted below with the 73-pin and 56-pin connectors and the Porsche 996 Turbo header. There are also a few other integrated connectors within this harness described below.





The gray Deutsch 2P DTM “Flash Enable” connector is used for secondary hardware flashing. The included shunt connector jumps the 2 wires together. Once initially flashed, the EMS is normally upgraded in the software, not using this connector.

The gray Deutsch 4P DTM connector is used for “AEMNet”. AEMNet is an open architecture based on CAN 2.0 which provides the ability for multiple enabled devices, such as dashboards, data loggers, etc., to easily communicate with one another through two twisted cables (CAN+/CAN-).

The gray Deutsch 12P DTM “Auxiliary” connector is used to adapt many common ancillary inputs and outputs easily. Included in the kit are a DTM 12P mating connector, 12 DTM terminals, and a DTM 12P wedgelock. If used, these components will need to be terminated by the installer or end user with 16–22awg wire (not included). Note: the pin numbering is molded into the connector.

Below is a description of each of the available input/output found in the Porsche 996 Turbo specific “Auxiliary” connector.

Deutsch Pin	Destination Pin	Pin Description	Default Pin Function	Notes
1	A1-31	Sensor Ground	Isolated sensor ground	This is not the same as a power ground or chassis ground.
2	A1-29	+5V Ref	5 volt sensor reference supply	When measured with a voltmeter, it is normal to not measure exactly 5V.
3	A1-3	+12V From Relay	12 volt power supply from relay	This 12V is coming through the vehicle's main relay and should only be used for low current electronics.
4	C1-37	Analog 9	Fuel Pressure	This wire goes directly to the signal wire of the pressure sensor.
5	C1-36	Analog 8	MAP	This should be wired directly to the MAP sensor's signal pin. **Note: The OEM Porsche boost pressure sensor connection must be removed if adding an external MAP sensor.**
6	C1-40	Analog 12	Mode Switch	This analog input can be used for other functions such as launch boost target, 2 step, and start enable.
7	C1-26	Digital 5	Flex Fuel	This frequency/duty input can be used as flex content sensor, turbo speed sensor, MAF sensor, or a wheel speed/vehicle speed sensor.
8	C1-44	Highside 0	Not Assigned	For a relay, this should be wired to terminal 86 (or 85). Supply chassis ground to the opposite terminal 85 (or 86). If directly driving a low current component, wire this to the 12V terminal. **4 amps max current.**
9	C2-15	Analog Temp 4	Charge Out Temp	This analog input can be used for temperature sensors only.
10	C2-43	Lowside 8	Not Assigned	This lowside output can be used to activate the lowside of a relay or PWM a +12V solenoid.
11	C1-25	Digital 4	Not Assigned	This frequency/duty input can be used as flex content sensor, turbo speed sensor, MAF sensor, or a wheel speed/vehicle speed sensor.

12	C2-37	Digital 6	Not Assigned	This switch input can be used as a clutch switch, brake switch, staged switch, nitrous switch, A/C request switch or as a start enable option.

AIRFLOW METERING

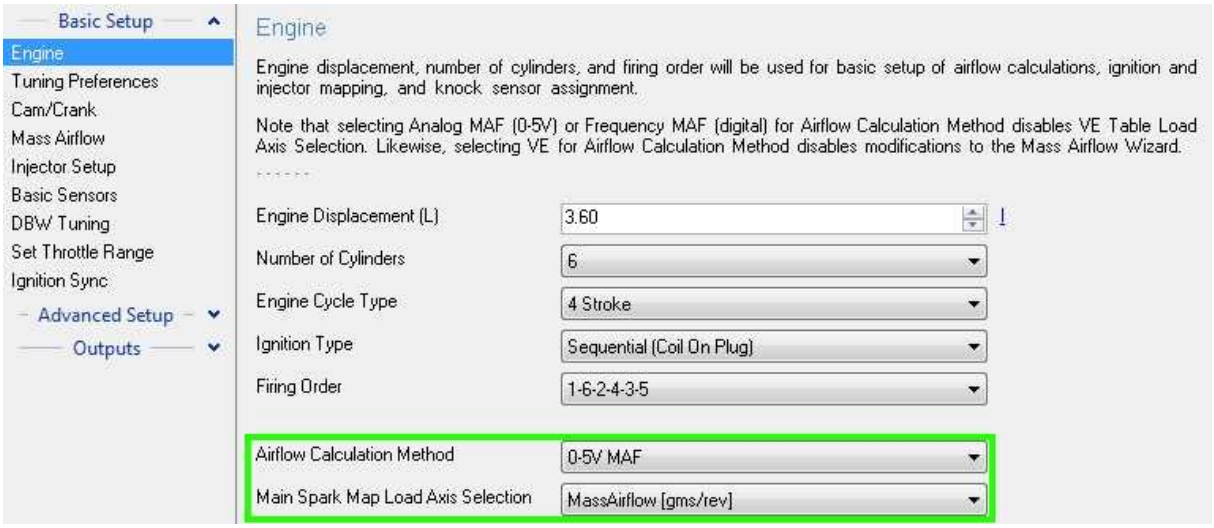
The Porsche 996 Turbo is equipped with one MAF (Mass Air Flow) sensor and a pre-throttle body charge pressure sensor. The Infinity supports the factory mass airflow sensor and boost pressure sensor. Users can also add a MAP (Manifold Absolute Pressure) sensor and use the speed density airflow algorithm instead.

Note: If adding an external MAP sensor, users must disconnect the electrical connection from the OEM Porsche boost pressure sensor to the Infinity.

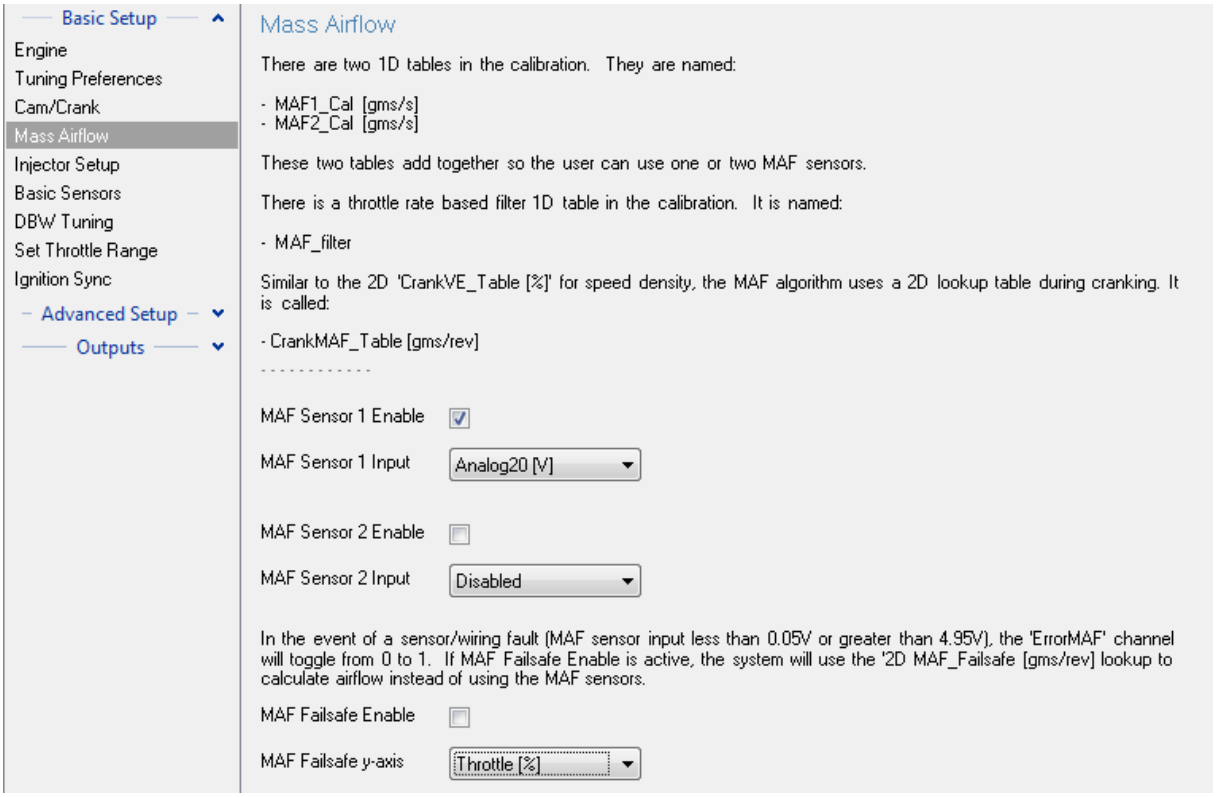
Mass Airflow Setup

Setup Wizard

To enable MAF on the Infinity, use the setup wizard's "Engine" tab to select "0-5V MAF" or "Frequency MAF" as the airflow calculation method. Users can choose a number of options for the main spark map load axis. The example below shows "MassAirflow [gms/rev]" as the main spark load axis. The 996 Turbo base calibration will have this pre-configured for use on a stock 996 Turbo.



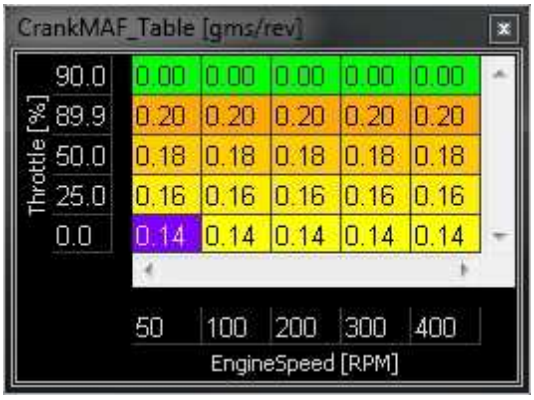
Enable the MAF sensor and choose input options in the setup wizard's "Mass Airflow" tab. The MAF failsafe option can also be enabled here. The 996 Turbo base calibration will have this pre-configured for use on a stock 996 Turbo.



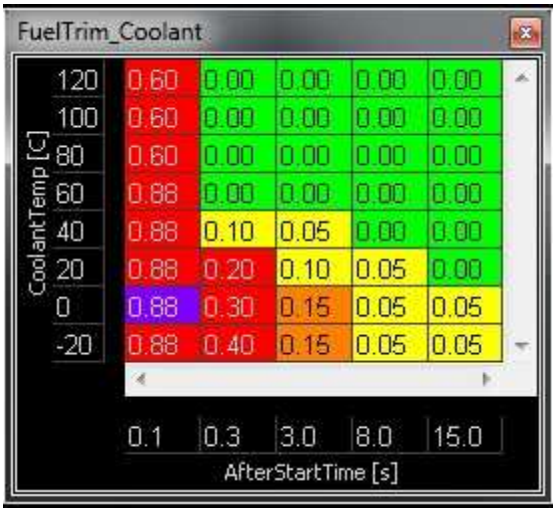
Note: Users have the option of using either MAP [kPa] or Mass Airflow [gms/rev] (and in some cases, Throttle [%]) for options requiring an engine load. This includes ignition timing tables, lowside tables, lean protect tables, wall wetting tables, fuel trim tables, ignition trim tables, injector timing tables, staged fuel tables, VVC target tables, lambda target tables, nitrous activation, lambda feedback enable activation, decel fuel cut activation, etc. It is up to the user to determine which load reference to use in all cases.

Starting

Because there is little mass flow initially during cranking, the Infinity uses a look-up table during engine cranking (<400 RPM) to determine fuel requirements. This 2D Table is called "CrankMAF_Table [gms/rev]" and the Infinity will calculate mass airflow (grams/second) based on this grams/rev input. As shown in the example below, a "clear flood" function can be built into this table (>90% throttle shown).

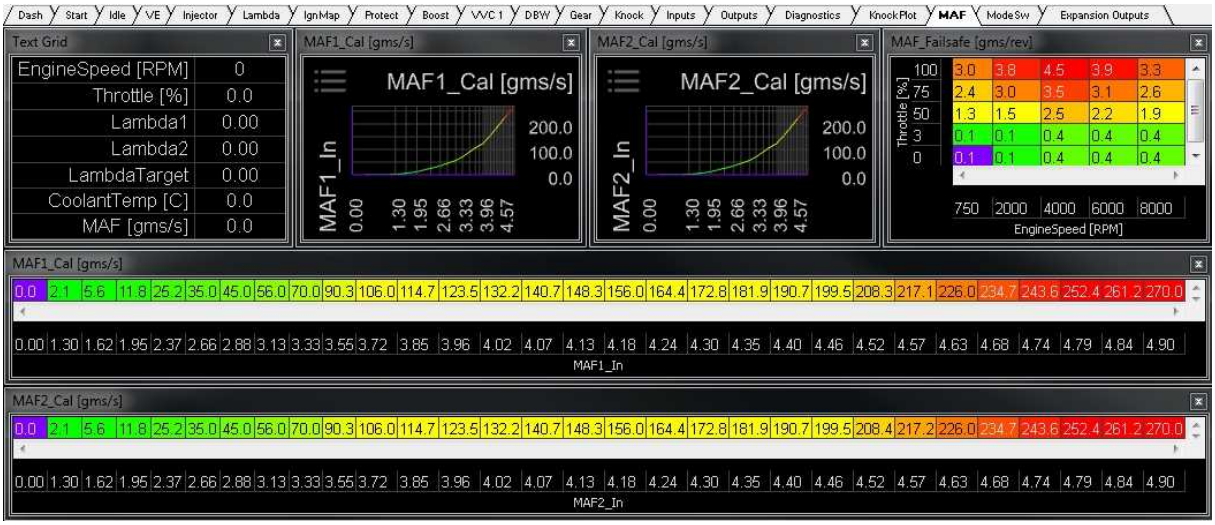


As the transition from engine cranking to engine running occurs (at 400 RPM), the Infinity switches from the "CrankMAF" look-up fueling method mentioned above to the MAF sensors. The smoothness of this transition can be maximized by using the 2D table "FuelTrim_Coolant" to add some initial fuel for a fraction of a second after the transition occurs, as shown below.



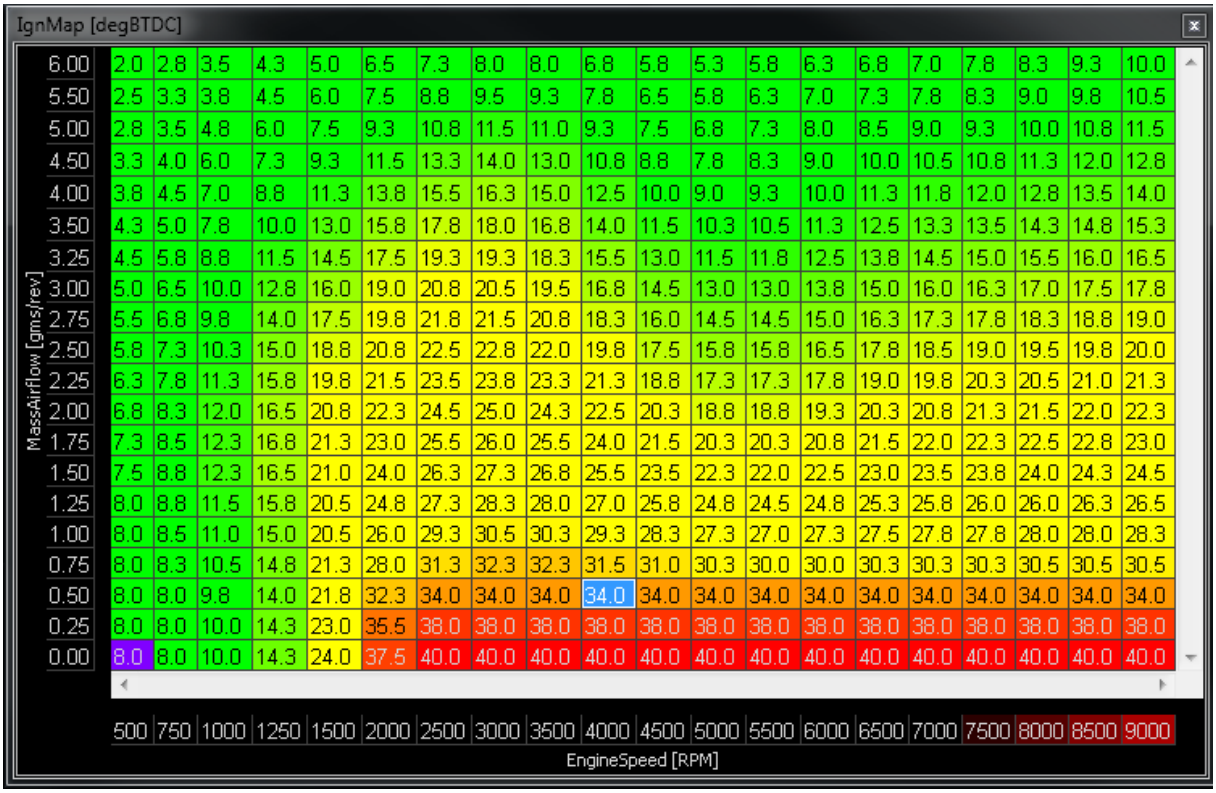
Fuel Tuning

Fuel tuning with MAF sensors uses the two 30-cell 2D tables below called "MAF1_Cal [gms/s]" and "MAF2_Cal [gms/s]". When two MAF sensors are enabled, these tables are added together to determine fuel requirements. The 996 Turbo only has one MAF sensor so only "MAF1_Cal [gms/s]" is used The VE table is not used when MAF is enabled. The factory UEGO sensors are supported and the AEM adapter harness is wired to use them.



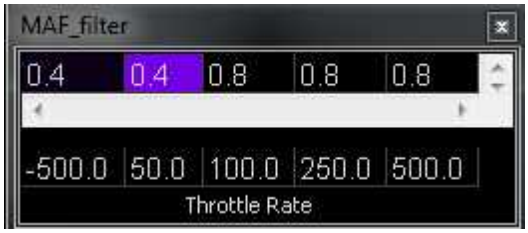
Tuning Ignition Timing

Unless users are using an external (non factory) MAP sensor plumbed into the intake manifold, it is recommended that users do not use "MAP [kPa]" as an engine load input into the Ignition table. This is because the OEM Porsche boost pressure sensor is located before the throttle blade and will not register manifold vacuum. The AEM 996 Turbo base calibration is configured to use the OEM boost pressure sensor and the main ignition map load axis is "MassAirflow [gms/rev]" as shown below.



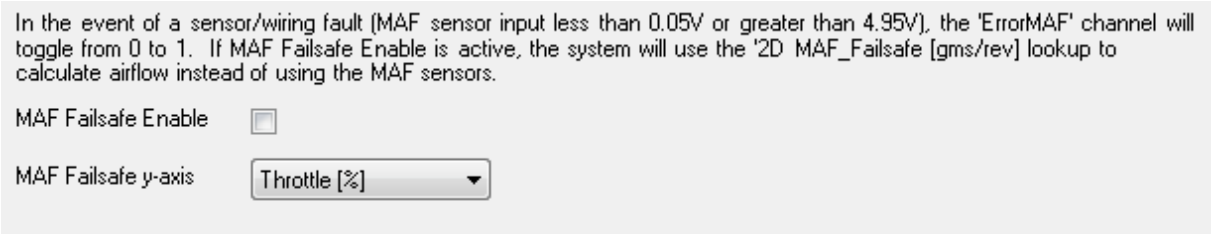
MAF Filter

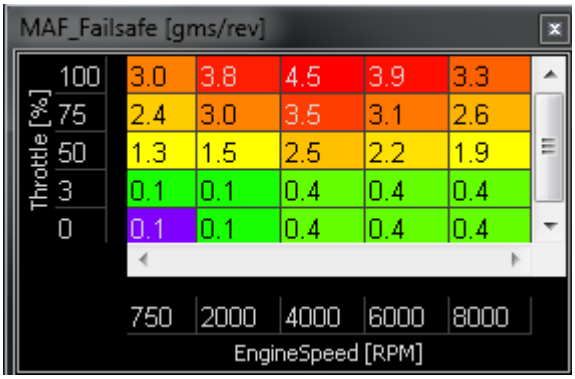
Tuning the MAF filter properly plays an important role for large transient throttle changes. If throttle angle is quickly increased to wide open from a low throttle angle, high manifold vacuum condition, air mass fills the intake manifold (nearly equalizing pressure to atmospheric) at a quicker rate than is consumed by the engine (this is more prominent at lower RPM). Without filtering, this would result in poor (over) fueling. The example below shows higher filtering during quick throttle open events to combat over fueling and a lower filter for throttle closing events to allow for maximum decel fuel cut response.



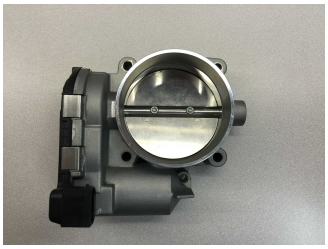
MAF Failsafe

In the event of a sensor/wiring fault (MAF sensor input less than 0.05V or greater than 4.95V), the "ErrorMAF" channel will toggle from 0 to 1. If the MAF Failsafe Enable is active (configurable in the wizard's "Mass Airflow" tab), the system will use the 2D "MAF_Failsafe [gms/rev]" look-up table to calculate airflow instead of using the MAF sensor. Users can choose between Throttle [%] and MAP [kPa] as a load axis. Users can enable the lean protect function in the setup wizard for further engine safety.





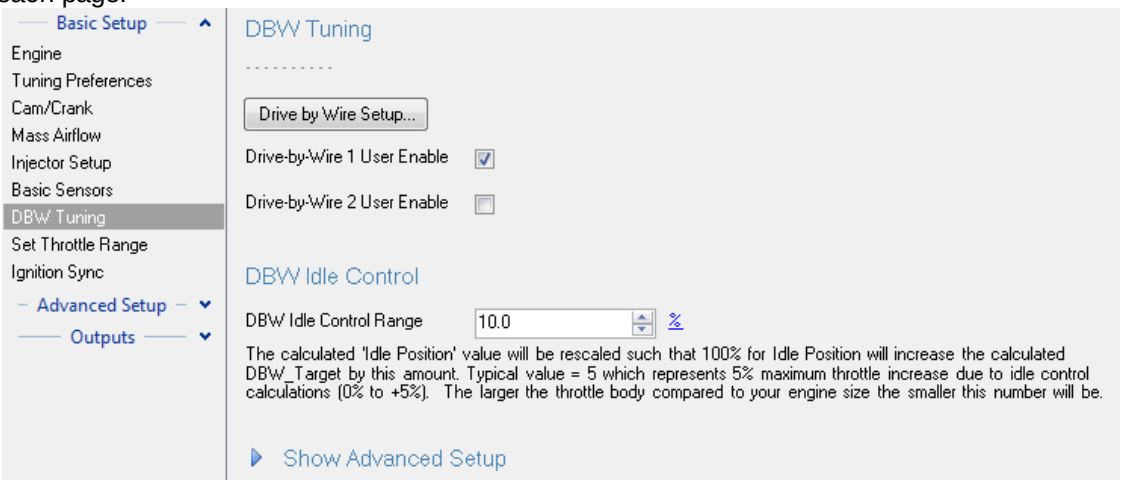
DRIVE-BY-WIRE THROTTLE CONTROL



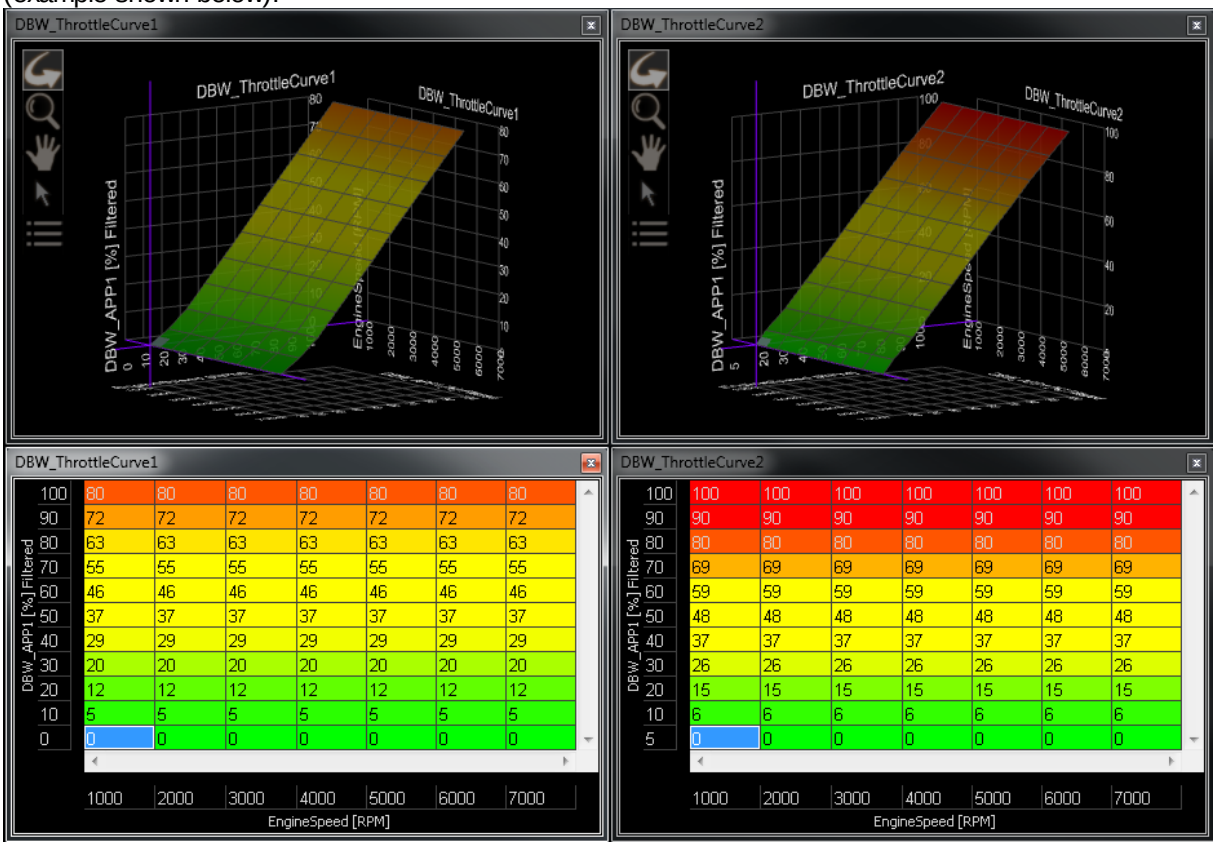
The Porsche 996 Turbo uses a single throttle body controlled via drive-by-wire (DBW). It is important to note that throttle control is a critical system which needs to be correct. The basic terms of drive-by-wire are as follows: the 'gas pedal' inside the passenger cabin is called the Accelerator Pedal (DBW_APP1%), while the electronically controlled throttle in the engine bay is referenced as 'Throttle' (Throttle%, DBW1_TPSA%). Based on the measured Accelerator Pedal position, the ECU determines a desired DBW_Target position and moves the Throttle to that position.

As shown, there is a Drive By Wire Wizard which must be used to calibrate accelerator pedal and throttle position sensors. Although sensor calibration values from one vehicle may be close enough to work for another vehicle under some circumstances, it is absolutely necessary to run the Drive By Wire Wizard before running the engine for the first time. The wizard should be repeated if any components in the throttle control system are removed or replaced such as the throttle bodies, TPS sensors, electronic throttle control motor, or accelerator pedal.

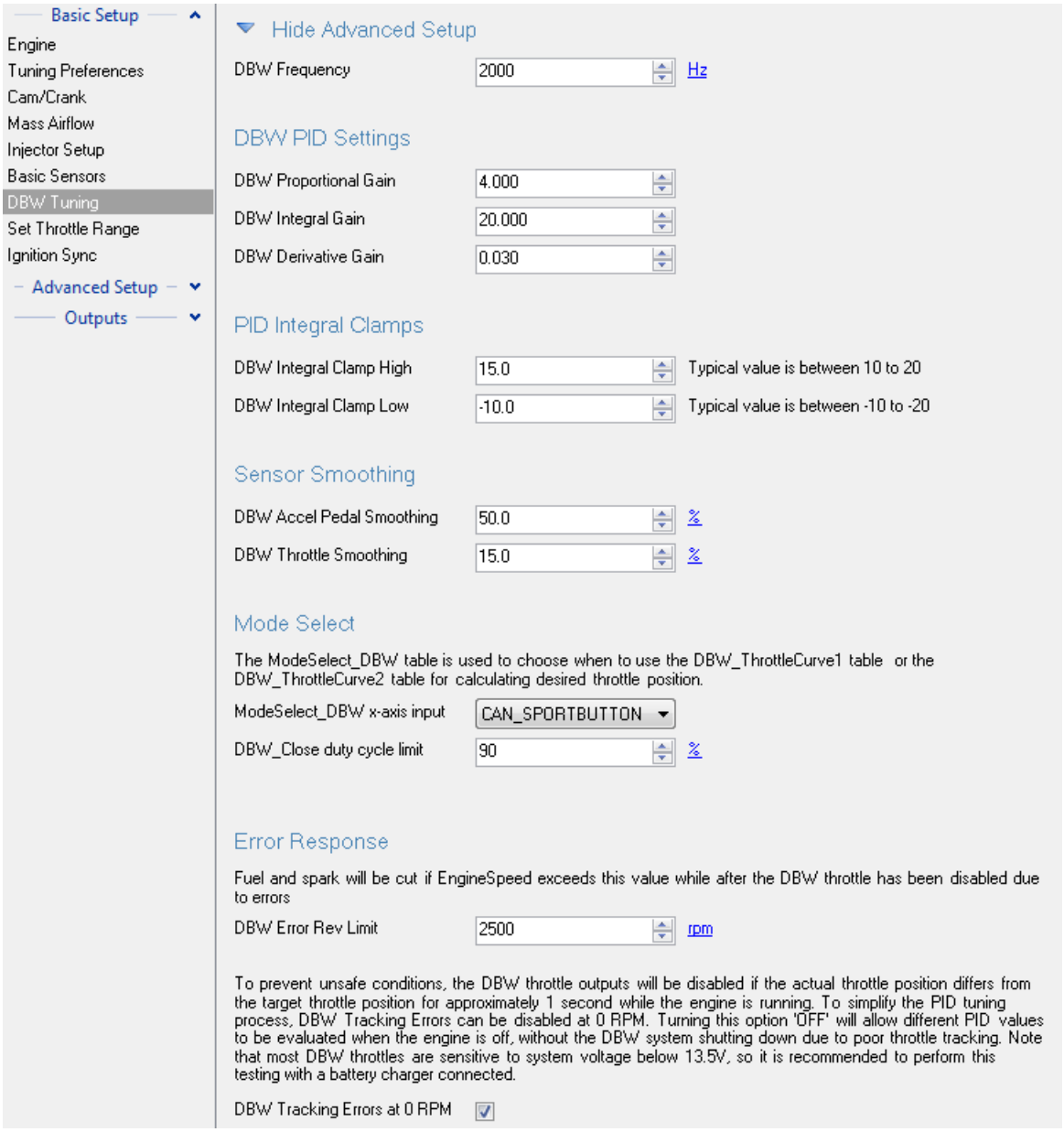
Please ensure the vehicle's battery is fully charged (at least 12.6 Volts) before running the Drive By Wire Wizard, as low battery voltage can result in abnormal sensor measurements. If a battery charger is available, it is preferable to connect the battery charger in 5A, 10A, or 20A mode and perform the Drive By Wire Wizard while the battery voltage is near 13.5–14.0 Volts. When connected to the Infinity EMS with the engine OFF, go to Wizards | Drive By Wire Wizard. Follow the step-by-step instructions for each page.



The 1D ModeSelect_DBW table is used to switch between the two different DBW_ThrottleCurve tables, depending on the status of the MODESWITCH function. Both 2D tables use accelerator pedal position for the y-axis and RPM for the x-axis. The values that are entered in the table are throttle position targets (example shown below).



Note: There is also a DBW Tuning section in the Wizards | Setup Wizard | DBW Tuning… These settings can be used to fine tune DBW response.



There are a few integrated DBW fail safes incorporated into the Infinity system. The ECU constantly monitors the accelerator pedal sensor voltage and throttle position sensor voltages to ensure the signals are not excessively high or low due to damaged sensors, short circuits, or broken wires. The ECU also performs self-diagnostics to ensure the electronic throttle is following desired DBW_Target properly, that the DBW throttle control motor is not using excessive energy to move the throttle, and watching to see that all the redundant sensors are working together as expected. If any of these conditions are determined to be abnormal or unsafe, the ECU can shut the engine down to prevent unintended engine acceleration. This error will reset when the ignition key is cycled.

CRUISE CONTROL

Currently, a cruise control feature is not supported with the AEM Infinity. However, the multi-functional steering wheel buttons are transmitted over the Porsche CAN bus and are available for miscellaneous purposes described below. There are 4 buttons: Enable, Cancel, Set, Accelerate+, and Decelerate- (as shown).

Note: Cruise enable (channel "CC_Enable") must be active (indicated by an illuminated green cruise light on the dash) for the below features to be functional. To activate "CC_Enable", simply turn cruise control on (press the outer button on the cruise multifunction switch in once).

Cancel

Users can configure the Cancel button to either the 3-step rev limiter or be an AEM traction control switch. It is not recommended to use the Cancel button for both of these functions simultaneously. This switch channel is called “CC_Cancel”.

A 3-step rev limiter is a simplified traction control based system that uses engine and vehicle speed or launch timer inputs to limit the RPM of the engine. If using the Cancel button as a 3-step rev limiter switch, first be sure the 3StepSwitch table is set to recognize the “momentary” Cancel button, as shown in figure 1. Set the 3StepTargetFuel and/or the 3StepTargetSpark table’s first (0 MPH) cell to the desired launch RPM. When the Cancel button is held down, the EMS will limit the engine’s corresponding RPM. Once the car is launched and the EMS begins to register vehicle speed, the RPM limit can then be tailored to prevent wheel spin using these tables.

If using the Cancel button as a traction control switch, the latching Cancel button changes the TC_SlipTargetTrim 1-axis lookup table, as shown in figure 2. Simultaneously, the low fuel light on the dash will blink to inform the driver the status of the programmable AEM traction control. Normally this table is used with a multiple position switch. However, because the Cancel button is either OFF (0) or ON (1), only the first two cells of the table are used. Two possible traction scenarios, for example, could be ON/OFF or aggressive/nonaggressive. To use this feature, it must be enabled in Infinity Tuner: Wizard | Setup wizard | Traction Control | Traction Control Enable.

Figure 1: 3-Step Setup

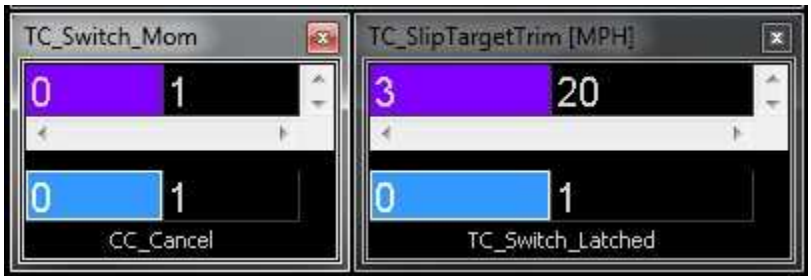
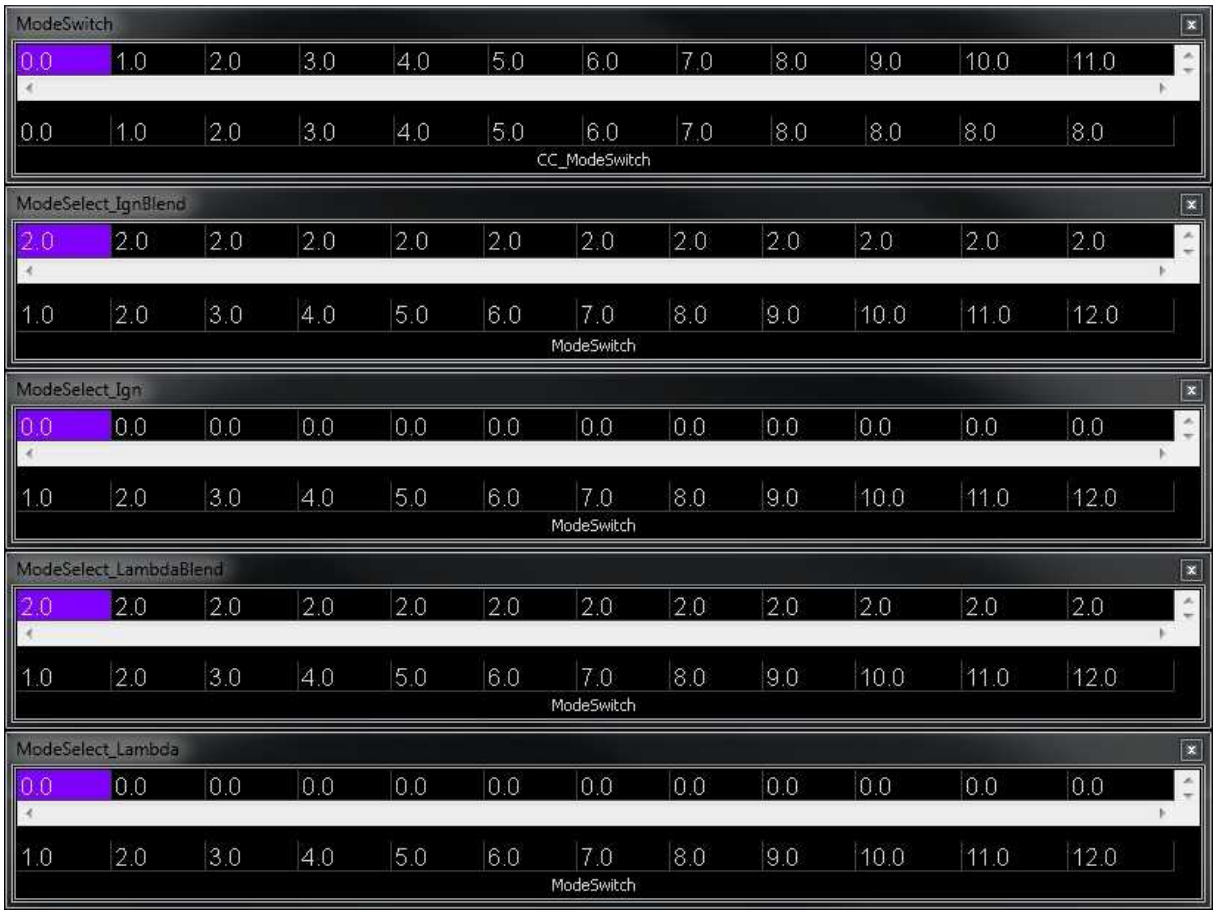


Figure 2: Traction Control Setup

Accel/Decel Buttons

The steering wheel's Accelerate+ and Decelerate- (pull towards, push down) momentary buttons increment and decrement the map switching function "CC_ModeSwitch". This feature is extremely flexible as it can be used to switch VE tables, ignition maps, lambda targets, and boost levels.



Notes:
When the Accelerate+ or Decelerate- button is depressed (or when KeyOn occurs) the tachometer displays 1K, 2K, 3K, 4K, 5K, 6K, 7K, or 8K momentarily representing the currently selected value of ModeSwitch. Because of the Porsche 996 Turbo's tachometer range, 1–8 are the only valid values (9–12 are not used for this application but can be used if using an external 12 position switch).

In order for the current ModeSwitch mode to be recalled between key off/key on cycles, the "Key Off Commit" function must be enabled in the tuning preferences section of the wizard.

For safety precautions, the AEM base session files come standard with the VE tables, ignition maps, lambda targets, and boost tables all set the same because the Accelerate+ or Decelerate- button could be mistakenly bumped.

With the AEM Infinity, traction control can be controlled using any combination of DBW, fuel cut, ignition cut, or ignition retard.

In order to use this feature, care must be taken into account when setting up the tables and tuning. Enter the number of the table into the corresponding mode selection table for each feature.

CAN BUS

The AEM Infinity EMS for the Porsche 996 Turbo supports the majority of the CAN features including: Tachometer, Oil Temperature, Oil Pressure, Coolant Temperature, A/C Request/Control, Steering Angle, Boost Pressure, Wheel Speed Sensors, Reduced Engine Power Warning, MIL Warning, Cruise Light, and Fuel Consumption (MPG)

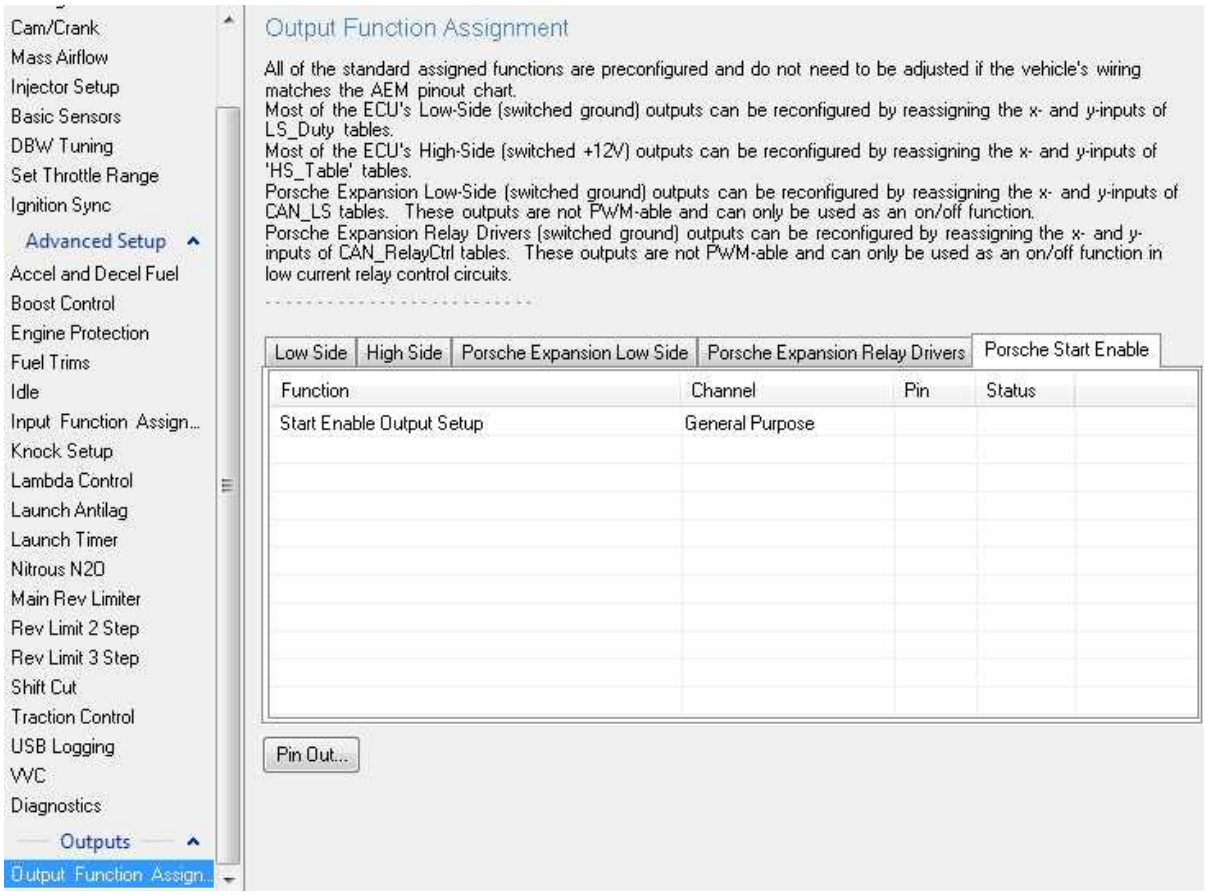
Rather than OBD2 diagnostics, the "Check Engine" light is now dedicated to the AEM “MILOutput” feature. The AEM MILOutput activates if any one of the following inputs are in an error state: air temp, baro pressure, coolant temp, exhaust back pressure, fuel pressure, UEGO #1, UEGO #2, MAF analog, MAF digital, MAP, oil pressure, or throttle position. If any of these sensors are not used, they should be turned OFF in the Wizard to avoid any false readings. To activate the MILOutput feature, go to the Wizard and check “Enable MIL Output” in Advanced Setup > Engine Protection.

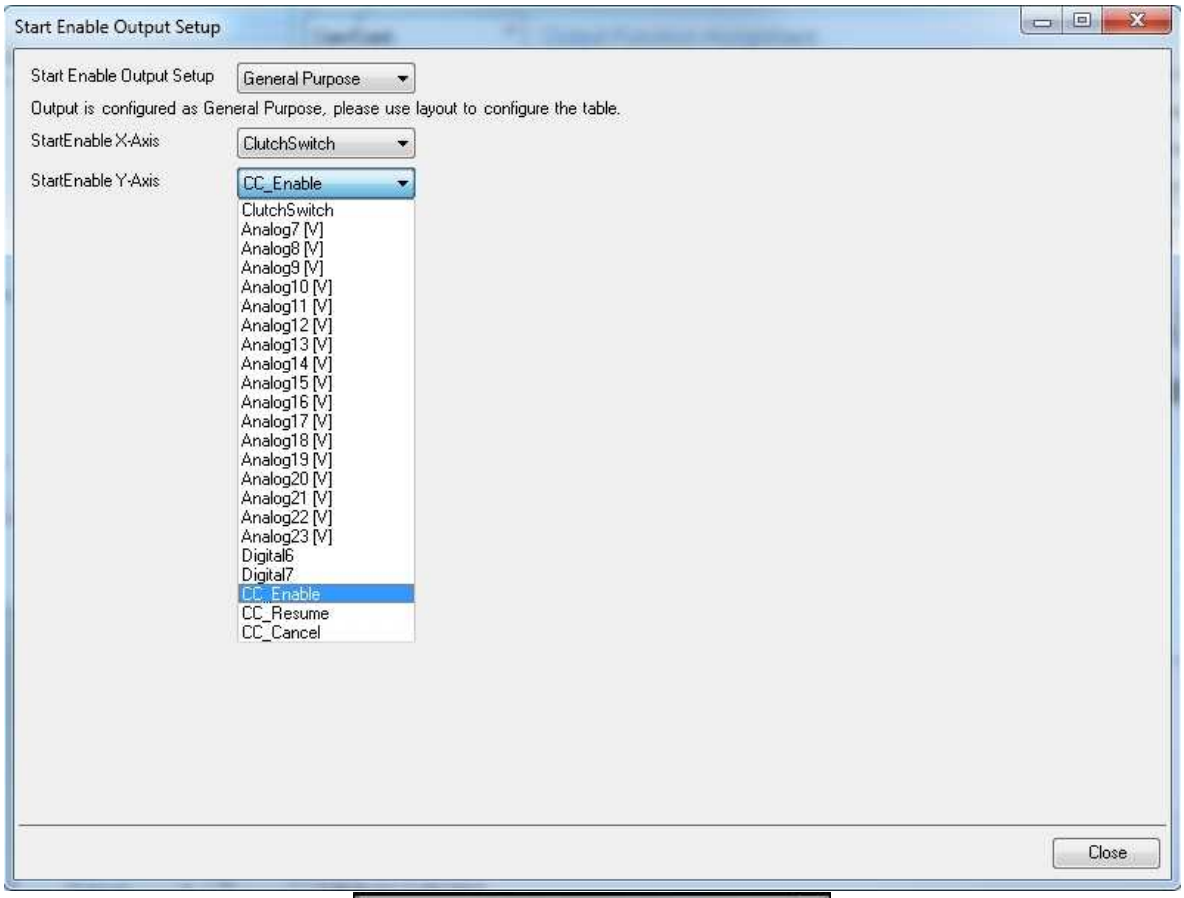
The following channels on the Porsche CAN bus are available for logging. The AEM traction control utilizes the CAN wheel speed sensors: CAN_FLWS [MPH], CAN_FRWS [MPH], CAN_RLWS [MPH], CAN_RRWS [MPH]. The following steering channels are only for data logging: CAN_SteeringAngle

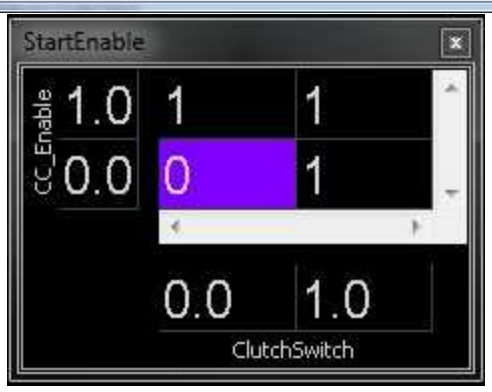
The fuel level sender on the Porsche 996 Turbo only actually measures the first 1/2 to 2/3 of a tank due to the saddle tank design to clear the front drive-train. The stock DME relays a fuel consumption rate via CAN to the factory dash. From here, the dash calculates fuel level and fuel mileage. The AEM Infinity does broadcast this message on the CAN bus. The fuel consumption rate is calculated based on injector duty cycle, injector size, engine speed, etc. Because there are many user configurable variables, if the fuel mileage not accurate, users can trim the flow rate being transmitted by using the trim channel "CAN_FuelFlowScaler". A value of 0.000005 should be close on a stock car. To increase calculated fuel consumption rate, make this trim larger. To decrease calculated fuel consumption rate, make this trim smaller.

STARTING

The Porsche 996 Turbo uses the clutch switch to enable starting on the factory Porsche DME. The Infinity allows this functionality to be user configurable. By using the 2D table "StartEnable", users can configure a number of analog, digital, or CAN inputs to enable starting. The supplied base calibration is configured to allow factory like starting with the clutch switch OR by pressing the cruise control enable button (effectively bypassing the clutch switch). For added security, users can add a hidden switch to enable starting. Taking things a step further, users can fully disable the 2D Start Enable table and password protect it, preventing starting until the table is password unlocked and and enabled again.



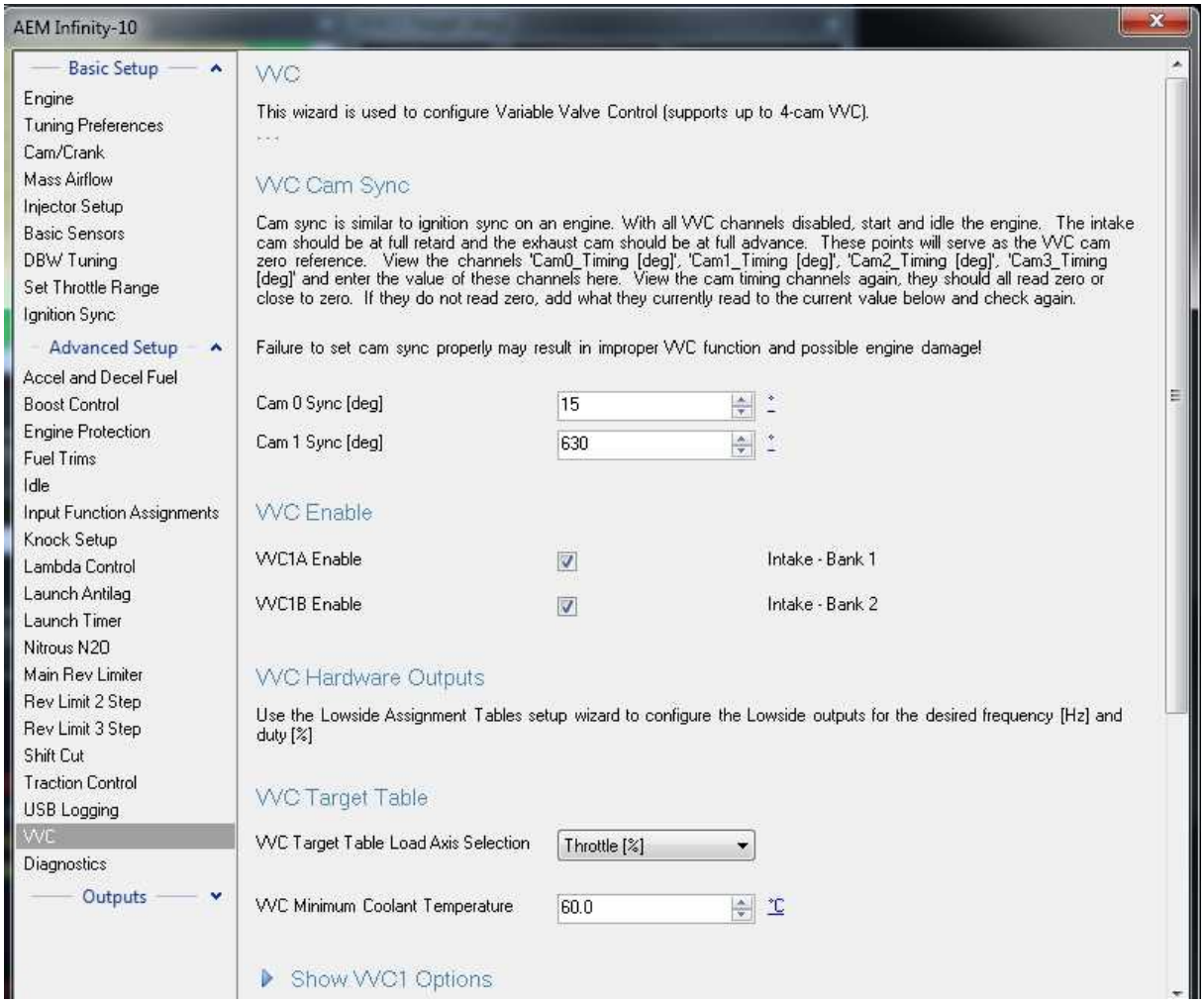


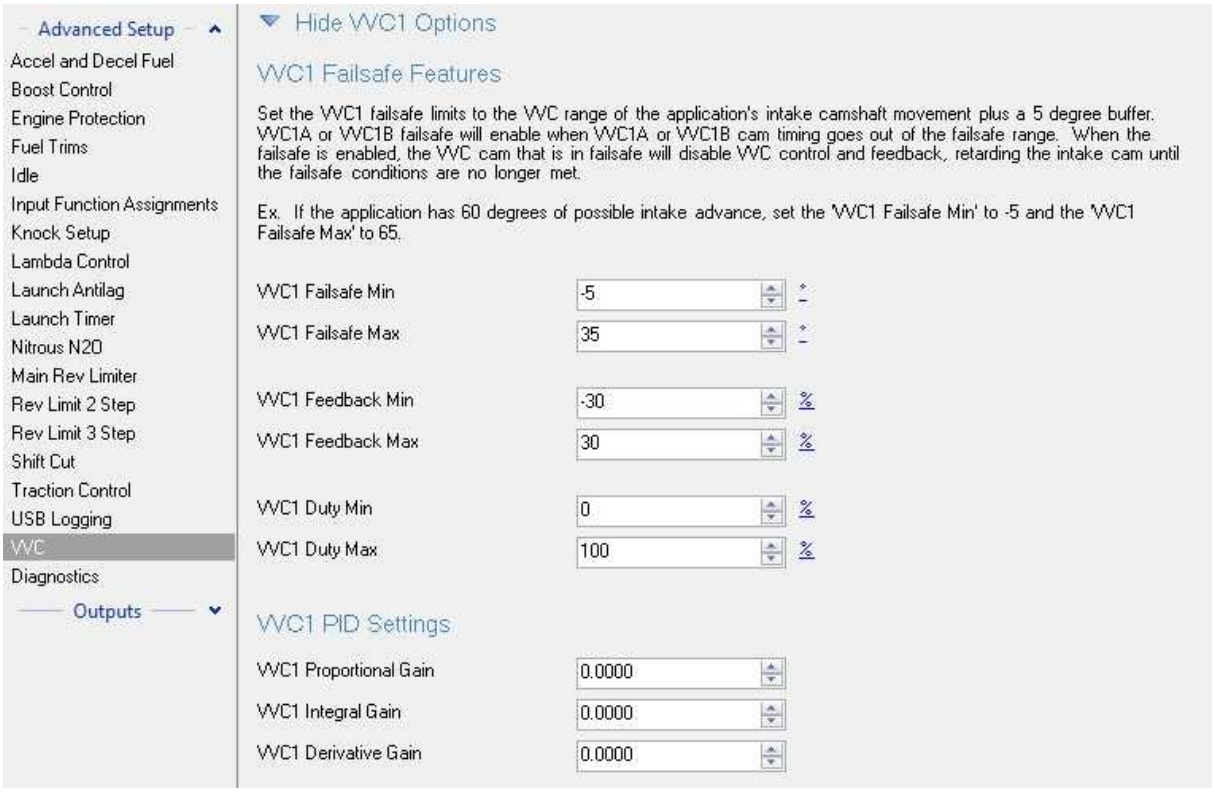


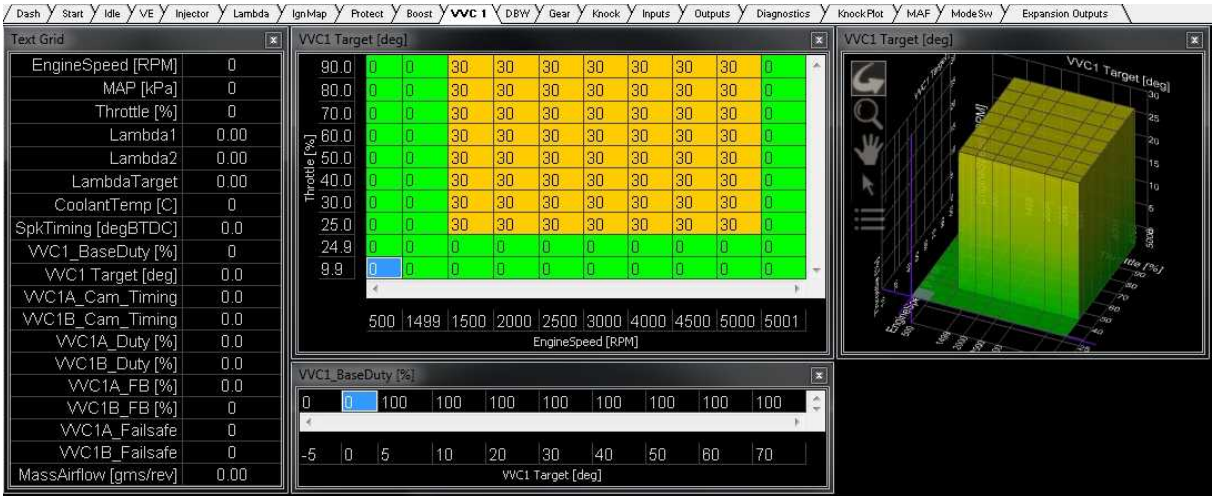
Shown Above: Start Enable input setup in the setup wizard "Output Function Assignments" tab and the 2D "StartEnable" table.

VARIOCAM

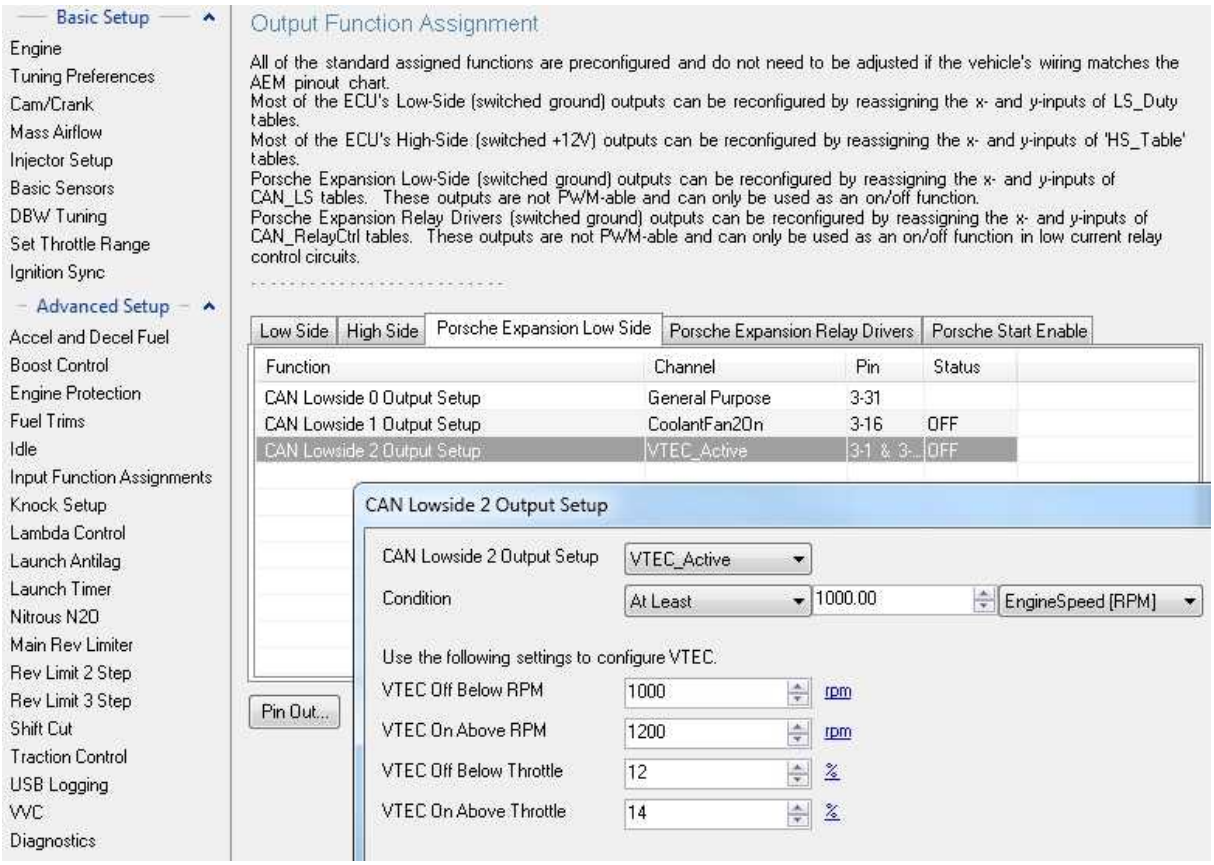
The AEM Infinity fully supports the Porsche 996 Turbo Variocam system. This includes both a user configurable low/high cam profile and 30 degrees of advance on both intake camshafts. The factory Porsche DME controls the intake cam timing in an on/off manner (0 degrees of advance or 30 degrees of advance) by providing a 0% or 100% duty cycle lowside switch to ground to the variocam solenoids.. The AEM Infinity is capable of controlling cam timing in an infinitely variable manner, however the base calibration is set to control them in an on/off manner like a stock DME. To allow for infinitely variable cam control, users must change the "VVC1_BaseDuty [%]" tables, add PID gains, and add VVC1 feedback min/max values.
Variocam VVC can be configured in the setup wizard's "VVC" tab and tuned using the "VVC1" Infinity Tuner layout tab (shown below).





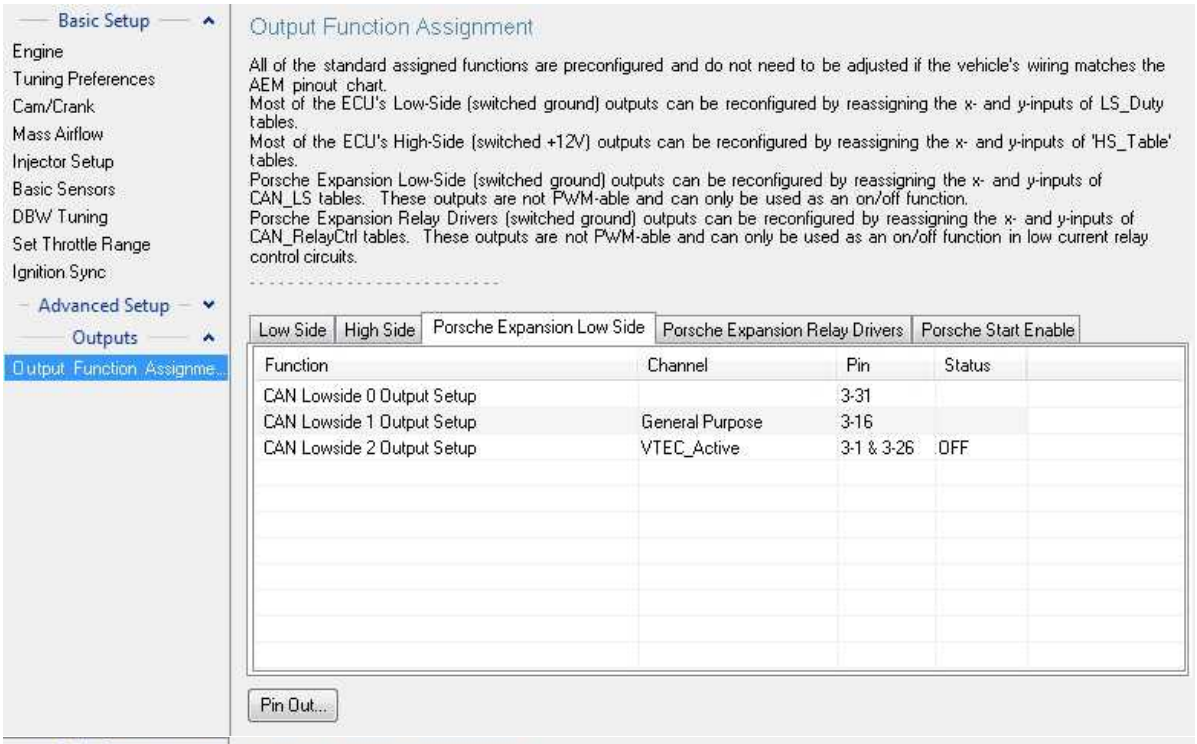


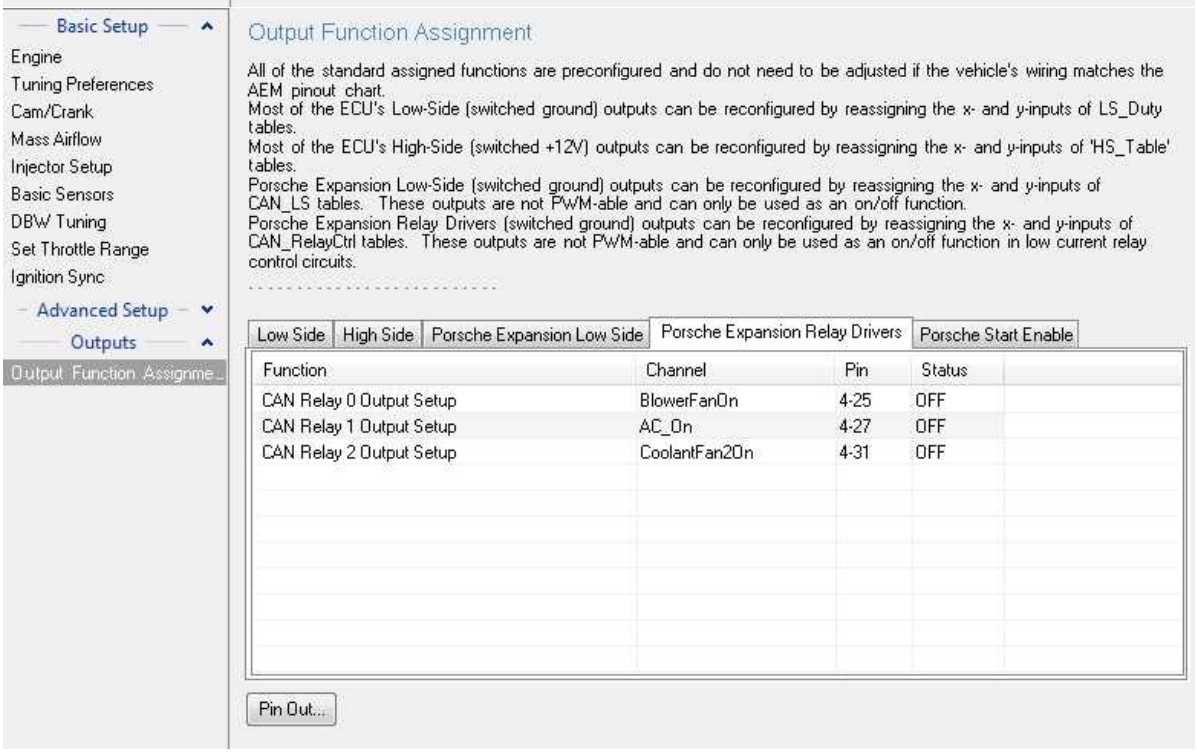
Variocam Plus Lo/Hi cam control can be configured in the "CAN Lowside 2 Output Setup" of the "Output Function Assignment" wizard tab. Select "VTEC_Active" as the main input. Because the Porsche 996 Turbo's small cam lobes are significantly smaller than the large cam lobes, the default settings activate the "hi" lobe at just 1200RPM and 14% throttle. Users can configure this to best suit their driving style.



EXPANSION OUTPUTS

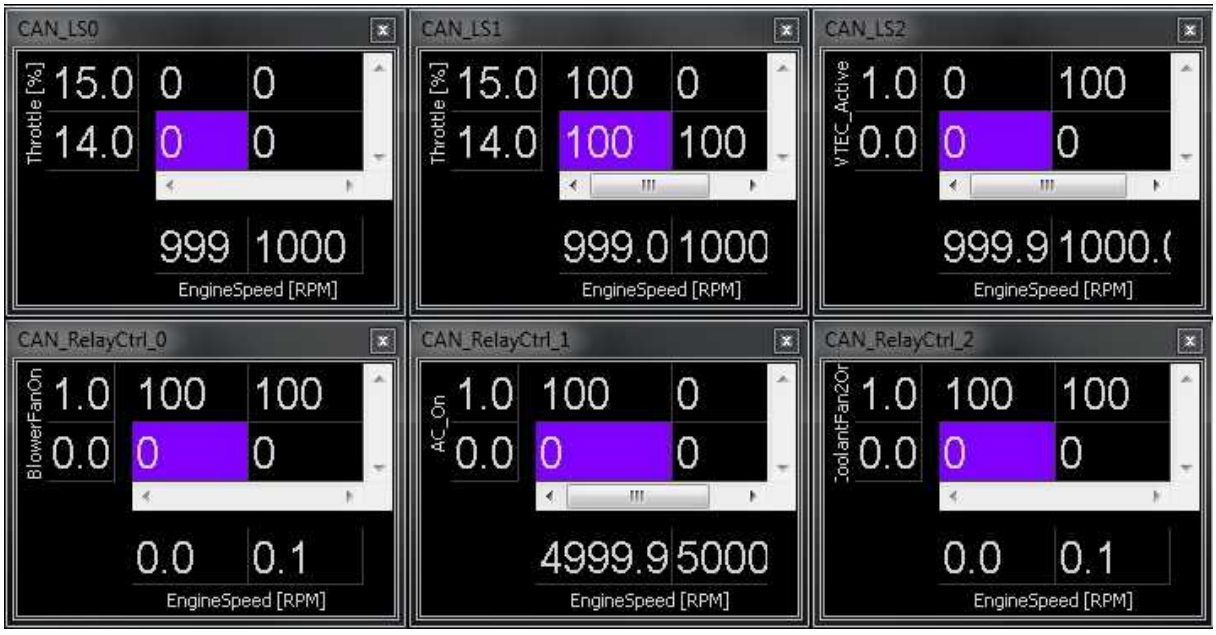
The AEM Adapter Interface includes three additional lowside outputs (ON/OFF 6A Max, not PWM-able) and three additional lowside relay drivers (500mA Max, not PWM-able). These outputs can be re-configured in the Output Function Assignments wizard tab.





Although reconfigurable, the AEM base calibration has these expansion outputs setup as follows:

Output	Pin	Function
CAN_LS0	AEM Adapter, Porsche Header Side, Connector 3, Pin 31	Not Used, Available
CAN_LS1	AEM Adapter, Porsche Header Side, Connector 3, Pin 16	Electronic Bypass Valve Direct Control
CAN_LS2	AEM Adapter, Porsche Header Side, Connector 3, Pin 1 and Pin 26	Variocam Lo/Hi Cam Direct Control
CAN_RelayCtrl_0	AEM Adapter, Porsche Header Side, Connector 4, Pin 25	Engine Compartment Blower Fan Relay Control
CAN_RelayCtrl_1	AEM Adapter, Porsche Header Side, Connector 4, Pin 27	A/C Compressor Relay Control
CAN_Relay_Ctrl_2	AEM Adapter, Porsche Header Side, Connector 4, Pin 31	Coolant Fan Stage 3 Control



INFINITY EMS INSTALLATION

The following installation instructions are shown on a Porsche 996 Turbo coupe. Installation on a Porsche 996 Turbo convertible will vary.

Step 1

Open the hood and disconnect the battery.

Lower the rear seats and locate the factory sub-woofer

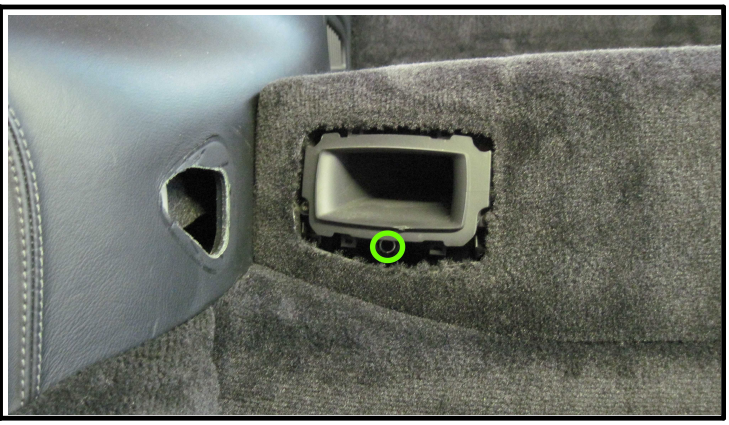
Carefully pull out the two plastic sub-woofer port trim pieces.

Step 2

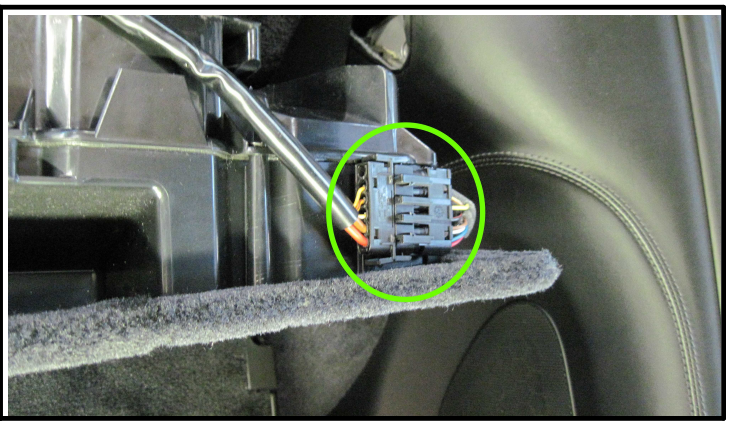
Remove the two rear seat brackets

Step 3

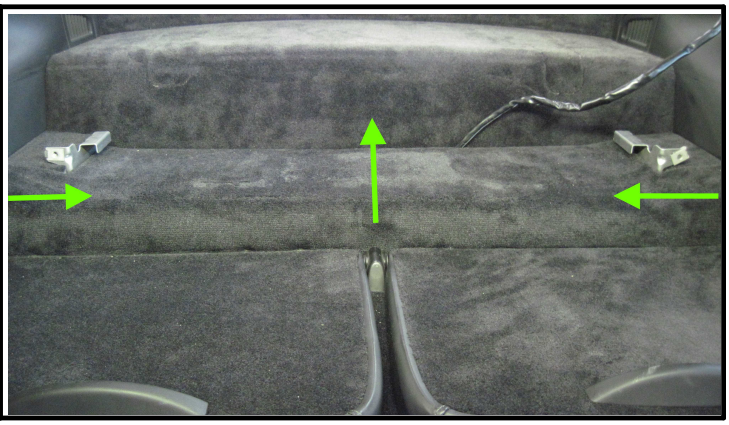
Remove the two bolts below the subwoofer ports.



Step 4

Slide the subwoofer assembly forward, un-clip the power connector and remove the subwoofer.	

Step 5

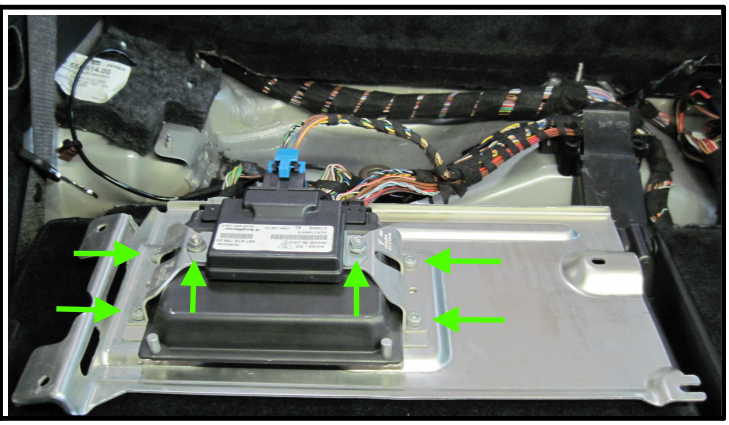
Pull the center of the carpet pad up while pulling the ends inward to remove the carpet pad, exposing the ECU shelves.	

Step 6

Remove the five 10mm nuts fastening the ECU shelves to the car and flip them over, exposing the DME.	

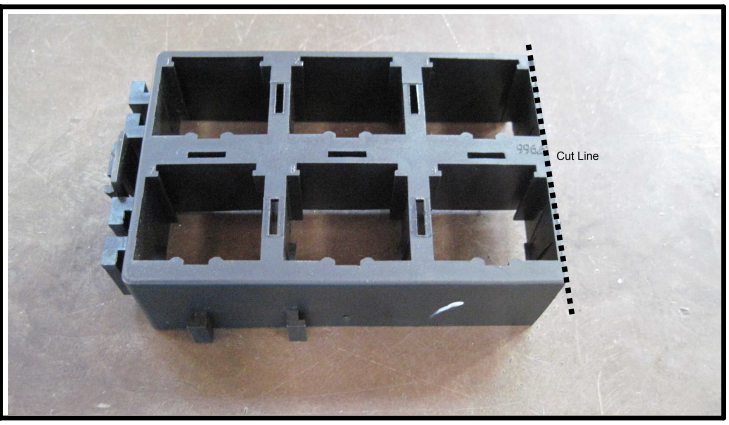
Step 7

Remove the four bolts and two nuts fastening the DME to the shelf. Remove the five electrical connectors to the DME and remove the DME.



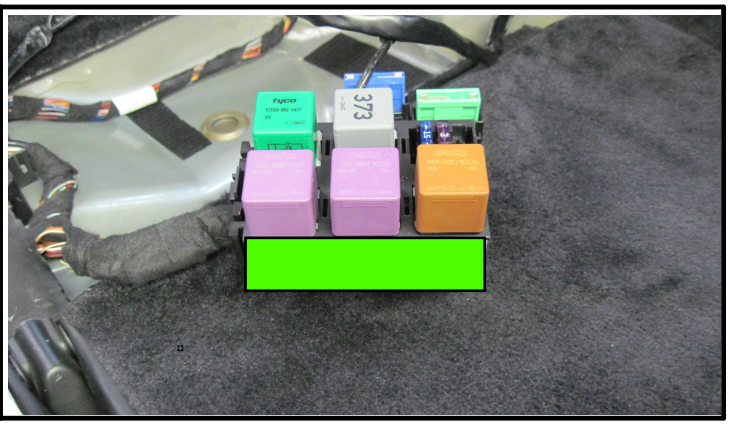
Step 8

To make room for the AEM Infinity, the relay carrier on the driver's side of the vehicle must be modified as much of the relay holder is unused. Remove the relays/fuses and cut the holder directly in half. Replacement relay holders can be purchased from Porsche for ~$30 and the Porsche part number is 996.610.111.00. Relay configurations may var depending on model year.

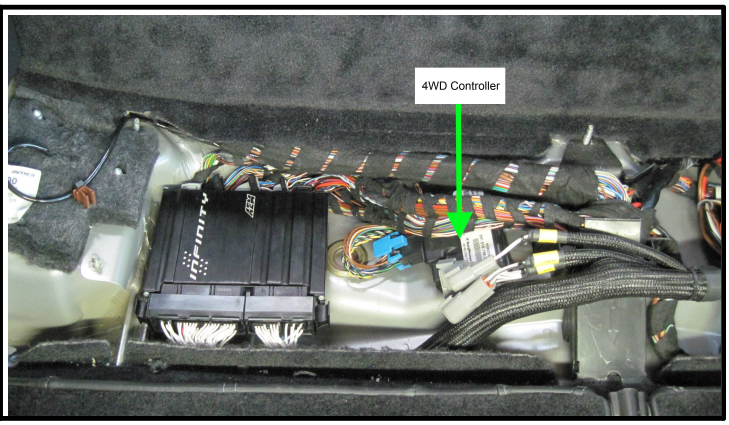


Step 9

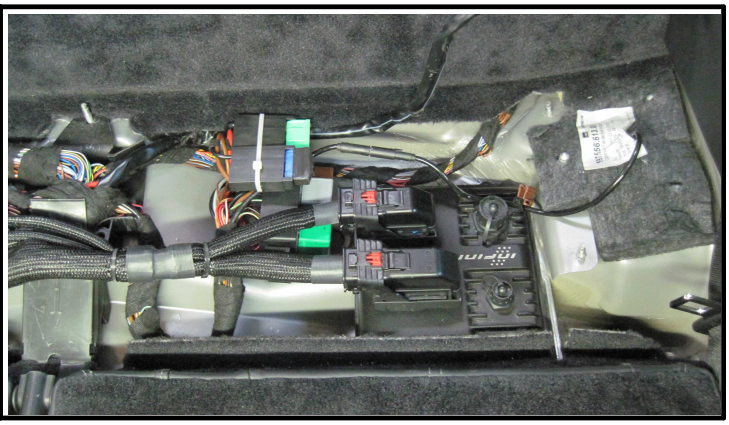
Re-install the relays/fuses in the shown orientation and add a piece of the supplied velcro as shown. Relays may vary depending model year.



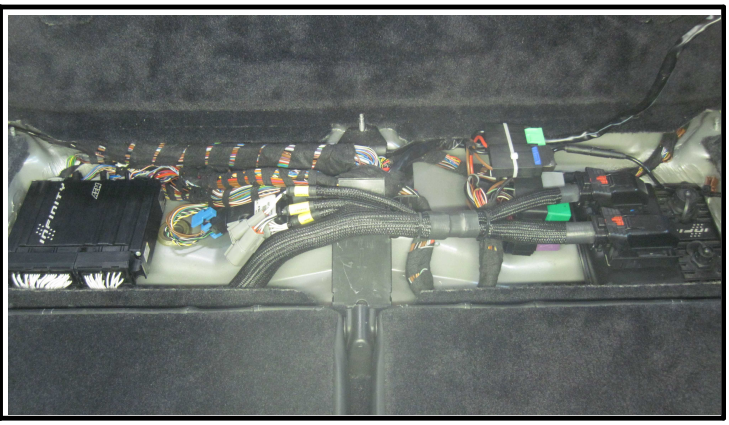
Step 10

Plug in both ends of the Infinity adapter in and affix the adapter to the vehicle with the supplied velcro.	

Step 11

Install the Infinity and relay holder as shown using the supplied velcro.	

Step 12

The finished install should look similar to this. Route USB/Logging/AUX/AEM Net cables/wires as desired. Re-install the aluminum shelf, carpet, and subwoofer in reverse order from removal.	

PINOUTS

Porsche Pinouts

Pin		2001-2005 Porsche 996 Turbo	Adapter Pin	Infinity Pin	Hardware Reference	Function	Hardware Specification	Notes
1	1	DME Relay, Terminal 15	A2-98, A2-106	C1-65	+12V Ignition Switch	Ignition Switch	10K Pulldown	Full time battery power must be available at C1-10 before this input is triggered.
	2	DME Relay, Terminal 30	A2-99, A2-100	C1-10	+12V R8C CPU	+12V Perm Power	Dedicated Power CPU	Full time battery power
	3	W-Wire	A2-114	---	---	---	---	---
	4	Ground, Electronics	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	C1-30, C1-55, C1-60, C1-73, C2-3, C2-39, C2-40	GND	Power Ground	Power Ground	Battery ground
	5	Ground, Fuel Injectors	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	C1-30, C1-55, C1-60, C1-73, C2-3, C2-39, C2-40	GND	Power Ground	Power Ground	Battery ground
	6	Ground, Output Stages	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	C1-30, C1-55, C1-60, C1-73, C2-3, C2-39, C2-40	GND	Power Ground	Power Ground	Battery ground
	7	Throttle Motor Actuator + Open	A1-121	C1-54	Harness_HBridge0_1	HBridge0_1	5.0A max Throttle Control Hbridge Drive	+12V to open
	8	DME Relay, Terminal 87	A1-3, A1-4, A1-5	C1-61, C1-64	+12V	+12V	12 Volt Power From Relay	Relay must be controlled by +12V relay control signal from pin C1-29
	9	Throttle Motor Actuator - Close	A1-120	C1-53	Harness_HBridge0_0	HBridge0_0	5.0A max Throttle Control Hbridge Drive	+12V to close
2	1	O2 Sensor Heater B2S2	---	---	---	---	---	---
	2	O2 Sensor Pump Current Regulator B1S1	A2-82	C1-5	UEGO 1 IA	UEGO 1 IA	UEGO 1 IA	O2 sensor 1 pump current regulator
	3	---	---	---	---	---	---	---
	4	---	---	---	---	---	---	---
	5	O2 Sensor Pump Current Regulator B1S1	A2-83	C1-6	UEGO 1 IP	UEGO 1 IP	UEGO 1 IP	O2 sensor 1 pump current regulator
	6	O2 Sensor Pump Current Regulator B2S1	A2-86	C2-48	UEGO 2 IA	UEGO 2 IA	UEGO 2 IA	O2 sensor 2 pump current regulator

	7	O2 Sensor Heater B1S2	---	---	---	---	---	---
	8	O2 Sensor Ground B2S2	---	---	---	---	---	---
	9	O2 Sensor Ground B1S1	A2-84	C1-8	UEGO 1 VM	UEGO 1 VM	UEGO 1 VM	O2 sensor 1 ground
	10	O2 Sensor Ground B2S1	A2-88	C2-45	UEGO 2 VM	UEGO 2 VM	UEGO 2 VM	O2 sensor 2 ground
	11	O2 Sensor Ground B1S2	---	---	---	---	---	---
	12	---	---	---	---	---	---	---
	13	O2 Sensor Heater B2S1	A2-118	C2-49	UEGO 2 Heat	UEGO 2 Heat	UEGO 2 Heat	O2 sensor 2 heater
	14	O2 Sensor Signal B2S2	---	---	---	---	---	---
	15	O2 Sensor Signal B1S1	A2-85	C1-7	UEGO 1 UN	UEGO 1 UN	UEGO 1 UN	O2 sensor 1 signal
	16	O2 Sensor Signal B2S1	A2-89	C2-46	UEGO 2 UN	UEGO 2 UN	UEGO 2 UN	O2 sensor 2 signal
	17	O2 Sensor Signal B1S2	---	---	---	---	---	---
	18	---	---	---	---	---	---	---
	19	O2 Sensor Heater B1S1	A2-119	C1-4	UEGO 1 Heat	UEGO 1 Heat	UEGO 1 Heat	O2 sensor 1 heater
	20	---	---	---	---	---	---	---
	21	Engine Compartment Temp Sensor	A2-90	C2-16	Analog Temp 5	Airbox Temperature	2.49K pullup to 5V	Main input to blower fan control
	22	5v Supply Mass Airflow Sensor	A2-91	C1-42	Sensor +5V	Sensor +5V	Regulated, fused +5V supply for sensor power	Analog sensor power
	23	---	---	---	---	---	---	---
	24	O2 Sensor Pump Current Regulator B2S1	A2-87	C2-47	UEGO 2 IP	UEGO 2 IP	UEGO 2 IP	O2 sensor 2 pump current regulator
3	1	Valve Lift Control B1	---	---	CAN Lowside 2	Valve Lift Control B1	On/Off only lowside switch, 6A max	Not PWM-able, see setup wizard for configuration
	2	Fuel Injector Cylinder 5	A1-65	C1-57	Injector 5	Injector 5	Saturated or peak and hold, 3A max continuous	Injector 5
	3	EVAP Purge	---	---	---	---	---	---
	4	Electronic Boost Control Solenoid	A1-63	C1-33	Lowside 1	Boost Control	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power
	5	Oil Temperature Sensor	A1-48	C1-68	Analog Temp 3	Oil Temperature	2.49K pullup to 5V	See setup wizard for configuration
	6	---	---	---	---	---	---	---
	7	5v Supply Charge Air Pressure & Oil Pressure Sensor	A1-28	C1-41	Sensor +5V	Sensor +5V	Regulated, fused +5V supply for sensor power	Analog sensor power
	8	Signal, Throttle Position Sensor 2	A1-49	C2-21	Analog 16	Throttle Position 2	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU. Monitor DBW1_TPSB [%]
	9	Ground, Mass Airflow Sensor	A1-12	C1-19	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
	10	5v Supply Throttle Actuation	A1-13	C2-24	Sensor +5V	Sensor +5V	Regulated, fused +5V supply for sensor power	Analog sensor power

11	Triggering of Secondary Air Pump Relay (Terminal 85)	---	---	---	---	---	---
12	Signal, Camshaft Position Sensor B1	A1-9	C1-22	Digital 1	Camshaft Position Senor B1	10K pullup to 12V	See setup wizard for options
13	---	---	---	---	---	---	---
14	Secondary Air Valve	---	---	---	---	---	---
15	Fuel Injector Cylinder 3	A1-26	C1-59	Injector 3	Injector 3	Saturated or peak and hold, 3A max continuous	Injector 3
16	Electronic Bypass Valve	---	---	CAN Lowside 1	Electronic Bypass Valve	On/Off only lowside switch, 6A max	Not PWM-able, see setup wizard for configuration
17	Ground, Sensors	A1-50	C1-20	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
18	Signal, Camshaft Position Sensor 2	A1-8	C1-23	Digital 1	Camshaft Position Senor B1	10K pullup to 12V	See setup wizard for options
19	Alternator Feedback	A1-1	---	---	---	---	---
20	---	---	---	---	---	---	---
21	---	---	---	---	---	---	---
22	Engine Coolant Temperature Sensor	A-51	C1-66	Analog Temp 1	Coolant Temperature	2.49K pullup to 5V	See setup wizard for configuration
23	Signal, Mass Airflow B1	A-52	C2-33	Analog 20	Mass Airflow Sensor B1	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU.
24	Signal, Throttle Position Sensor 1	A1-53	C1-35	Analog 7	Throttle Position 1	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU. Monitor DBW1_TPSA [%]
25	Ground, Throttle Position Sensors 1&2	A1-50	C1-20	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
26	Valve Lift Control B2	---	---	CAN Lowside 2	Valve Lift Control B2	On/Off only lowside switch, 6A max	Not PWM-able, see setup wizard for configuration
27	Fuel Injector Cylinder 4	A1-25	C1-58	Injector 4	Injector 4	Saturated or peak and hold, 3A max continuous	Injector 4
28	Fuel Injector Cylinder 6	A1-27	C1-56	Injector 6	Injector 6	Saturated or peak and hold, 3A max continuous	Injector 6
29	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---
32	Ground, Shielded	A1-50	C1-20	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
33	---	---	---	---	---	---	---
34	Intake Air Temperature Sensor	A1-70	C1-67	Analog Temp 2	Intake Air Temperature	2.49K pullup to 5V	See setup wizard for configuration
35	---	---	---	---	---	---	---
36	Input, Knock Sensor 2	A1-61	C1-28	Knock 2	Knock 2	Dedicated knock signal processor	See setup wizard for configuration
37	Ground, Knock Sensor 2	A1-11	C2-30	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
38	---	---	---	---	---	---	---

	39	Charge Air Pressure Sensor	A1-68	C1-36	Analog 8	MAP sensor	100k pullup to 5V	Sensor is pre-throttle blade and will not respond like a manifold referenced sensor.
	40	Fuel Injector Cylinder 2	A1-65	C1-62	Injector 2	Injector 2	Saturated or peak and hold, 3A max continuous	Injector 2
	41	Fuel Injector Cylinder 1	A1-7	C1-63	Injector 1	Injector 1	Saturated or peak and hold, 3A max continuous	Injector 1
	42	---	---	---	---	---	---	---
	43	---	---	---	---	---	---	---
	44	---	---	---	---	---	---	---
	45	Crank VR+	A1-46	C1-45	VR0+	Crank VR+	Differential variable reluctance zero cross detection	See setup wizard for configuration
	46	Crank VR-	A1-47	C1-46	VR0-	Crank VR-	Differential variable reluctance zero cross detection	See setup wizard for configuration
	47	---	---	---	---	---	---	---
	48	---	---	---	---	---	---	---
	49	Input, Knock Sensor 1	A1-62	C1-27	Knock 1	Knock 1	Dedicated knock signal processor	See setup wizard for configuration
	50	Ground, Knock Sensor 1	A1-11	C2-30	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
	51	---	---	---	---	---	---	---
	52	ABS Speed Sig	---	---	---	---	---	---
4	1	Interlock Clutch Switch	---	---	Clutch Switch	Clutch Switch	N/A	This is transmitted via CAN from the adapter to the Infinity
	2	---	---	---	---	---	---	---
	3	---	---	---	---	---	---	---
	4	Coolant Fan Stage 1	A1-22	C1-17	Lowside 2	Coolant Fan 1	Lowside switch, 4A max, NO internal flyback diode	See setup wizard for configuration
	5	---	---	---	---	---	---	---
	6	---	---	---	---	---	---	---
	7	Ground, Pedal Sensor 1	A1-58	C2-31	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
	8	Signal, APP Sensor 1	A1-21	C2-13	Analog 18	Accelerator Position 1	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU. Monitor DBW_APP1 [%]
	9	5v Supply, Pedal Sensor 1	A1-20	C2-23	Sensor +5V	Sensor +5V	Regulated, fused +5V supply for sensor power	Analog sensor power
	10	Fuel Pump 1 Relay Control	A1-2	C1-34	Lowside 0	Fuel Pump 1 Control	Lowside switch, 4A max, NO internal flyback diode	See setup wizard for configuration
	11	---	---	---	---	---	---	---
	12	Ground, Pedal Sensor 2	A1-14	C2-32	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
	13	Signal, APP Sensor 2	A1-15	C2-14	Analog 19	Accelerator Position 2	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU. Monitor DBW_APP2 [%]
	14	5v Supply, Pedal Sensor 2	A1-19	C2-22	Sensor +5V	Sensor +5V	Regulated, fused +5V supply for sensor power	Analog sensor power
	15	Ground, Differential Pressure Sensor	A1-14	C2-32	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
	16	Crash Signal	---	---	---	---	---	---

	17	Speed Signal Output	---	---	---	---	---	---
	18	---	---	---	---	---	---	---
	19	---	---	---	---	---	---	---
	20	Coolant Fan Stage 2	A1-41	C2-44	Lowside 7	Coolant Fan 1	Lowside switch, 4A max, NO internal flyback diode	See setup wizard for configuration
	21	Signal, Differential Pressure Sensor	A1-16	---	---	---	---	---
	22	---	---	---	---	---	---	---
	23	---	---	---	---	---	---	---
	24	---	---	---	---	---	---	---
	25	Engine Compartment Fan Relay Control	---	---	CAN Relay Control 0	CAN Relay Control 0	Lowside relay driver, 500mA max	See setup wizard for configuration
	26	DME Relay Control	A1-55	C1-29	+12V Relay Control	+12V Relay Control	0.7A max ground sink for external relay control	Will activate at key on and at key off according to the configuration settings.
	27	A/C Compressor Relay Control	---	---	CAN Relay Control 1	CAN Relay Control 1	Lowside relay driver, 500mA max	See setup wizard for configuration
	28	---	---	---	---	---	---	---
	29	---	---	---	---	---	---	---
	30	EVAP Canister Shutoff Valve	---	---	---	---	---	---
	31	Coolant Fan Stage 3	---	---	CAN Relay Control 2	CAN Relay Control 2	Lowside relay driver, 500mA max	See setup wizard for configuration
	32	---	---	---	---	---	---	---
	33	Start Enable	---	---	Start Enable	Start Enable	Lowside relay driver, 500mA max	See setup wizard for configuration
	34	Air Conditioning Pressure Switch	A1-56	---	---	---	---	---
	35	---	---	---	---	---	---	---
	36	CAN Hi	A1-72	C2-41	CAN B +	CAN B +	Dedocated high speed CAN tranceiver	Porsche CAN bus communication
	37	CAN Lo	A1-73	C2-42	CAN B -	CAN B -	Dedocated high speed CAN tranceiver	Porsche CAN bus communication
	38	---	---	---	---	---	---	---
	39	---	---	---	---	---	---	---
	40	---	---	---	---	---	---	---
5	1	Ignition Coil 6	A1-81	C1-15	Ignition Coil 6	Ignition Coil 6	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
	2	Ignition Coil 4	A1-79	C1-11	Ignition Coil 4	Ignition Coil 4	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
	3	Ignition Coil 2	A2-112	C1-13	Ignition Coil 2	Ignition Coil 2	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.

	4	Ignition Coil 5	A1-80	C1-16	Ignition Coil 5	Ignition Coil 5	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
	5	Ground	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	C1-30, C1-55, C1-60, C1-73, C2-3, C2-39, C2-40	GND	Power Ground	Power Ground	Battery ground
	6	Ignition Coil 1	A1-111	C1-14	Ignition Coil 1	Ignition Coil 1	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
	7	Camshaft Adjustment, Bank 1	A1-23	C1-18	Lowside 3	VVC1A	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power
	8	Camshaft Adjustment, Bank 2	A1-24	C1-2	Lowside 5	VVC1B	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power
	9	Ignition Coil 3	A2-113	C1-12	Ignition Coil 3	Ignition Coil 3	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.

Infinity Pinouts

Infinity Pin	Porsche Pin	Adapter Pin	12P AUX Pin	Hardware Reference	Function	Hardware Specification	Notes
C1-1	---	---	AUX 6	Lowside 4	Available	Lowside switch, 1.7A max, NO internal flyback diode.	Available, see setup wizard for configuration
C1-2	5-8	A1-24	---	Lowside 5	VVC1B	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power
C1-3	---	---	---	Lowside 6	Available	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power
C1-4	2-19	A2-119	---	UEGO 1 Heat	UEGO 1 Heat	UEGO 1 Heat	O2 sensor 1 heater
C1-5	2-2	A2-82	---	UEGO 1 IA	UEGO 1 IA	UEGO 1 IA	O2 sensor 1 pump current regulator
C1-6	2-5	A2-83	---	UEGO 1 IP	UEGO 1 IP	UEGO 1 IP	O2 sensor 1 pump current regulator
C1-7	2-15	A2-85	---	UEGO 1 UN	UEGO 1 UN	UEGO 1 UN	O2 sensor 1 signal
C1-8	2-9	A2-84	---	UEGO 1 VM	UEGO 1 VM	UEGO 1 VM	O2 sensor 1 ground
C1-9	---	---	FLASH 1	Flash Enable	Flash Enable	Flash Enable	+12V Flash Enable
C1-10	1-2	A2-99, A2-100	---	+12V R8C CPU	+12V Perm Power	Dedicated Power CPU	Full time battery power
C1-11	5-2	A1-79	---	Ignition Coil 4	Ignition Coil 4	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-12	5-9	A2-113	---	Ignition Coil 3	Ignition Coil 3	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-13	5-3	A2-112	---	Ignition Coil 2	Ignition Coil 2	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-14	5-6	A1-111	---	Ignition Coil 1	Ignition Coil 1	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-15	5-1	A1-81	---	Ignition Coil 6	Ignition Coil 6	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-16	5-4	A1-80	---	Ignition Coil 5	Ignition Coil 5	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C1-17	4-4	A1-22	---	Lowside 2	Coolant Fan 1 Control	Lowside switch, 4A max, NO internal flyback diode	See setup wizard for configuration
C1-18	5-7	A1-23	---	Lowside 3	VVC1A	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power
C1-19	3-9	A1-12	---	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
C1-20	3-17, 3-25, 3-32	A1-50	---	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
C1-21	---	---	---	Digital 0	---	10K pullup to 12V	See setup wizard for options

C1-22	3-12	A1-9	---	Digital 1	Camshaft Position Senor B1	10K pullup to 12V	See setup wizard for options
C1-23	3-18	A1-8	---	Digital 2	Camshaft Position Senor B2	10K pullup to 12V	See setup wizard for options
C1-24	---	---	---	Digital 3	Available	10K pullup to 12V. Will work with ground or floating switches.	This duty cycle reflects turbo vane actual position and under normal conditions, should reflect the control signal duty cycle.
C1-25	---	A1-56	AUX 11	Digital 4	Available	10K pullup to 12V. Will work with ground or floating switches.	This duty cycle reflects turbo vane actual position and under normal conditions, should reflect the control signal duty cycle.
C1-26	---	---	AUX 7	Digital 5	Available	10K pullup to 12V. Will work with ground or floating switches.	Available, see setup wizard for configuration
C1-27	3-49	A1-62	---	Knock 1	Knock 1	Dedicated knock signal processor	See setup wizard for configuration
C1-28	3-36	A1-61	---	Knock 2	Knock 2	Dedicated knock signal processor	See setup wizard for configuration
C1-29	4-26	A1-55	---	+12V Relay Control	+12V Relay Control	0.7A max ground sink for external relay control	Will activate at key on and at key off according to the configuration settings.
C1-30	1-4, 1-5, 1-6, 5-5	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	---	GND	Power Ground	Power Ground	Battery ground
C1-31	---	---	AEM NET 2	AEM Net CAN L	Dedicated High Speed CAN Transceiver	AEM Net CAN L	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-32	---	---	AEM NET 1	AEM Net CAN H	Dedicated High Speed CAN Transceiver	AEM Net CAN H	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-33	3-4	A1-63	---	Lowside 1	Boost Control	Lowside switch, 1.7A max with internal flyback diode. Inductive load should NOT have full time power.	See setup wizard for configuration
C1-34	4-10	A1-2	---	Lowside 0	Fuel Pump 1 Control	Lowside switch, 4A max, NO internal flyback diode	See setup wizard for configuration
C1-35	3-24	A1-53	---	Analog 7	Throttle Position 1	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU. Monitor DBW1_TPSA [%]
C1-36	3-39	A1-68	AUX 5	Analog 8	MAP sensor	100k pullup to 5V	Sensor is pre-throttle blade and will not respond like a manifold referenced sensor.
C1-37	---	---	AUX 4	Analog 9	Fuel Pressure	100K pullup to 5V	Available, see setup wizard for configuration
C1-38	---	---	---	Analog 10	Baro Sensor	100K pullup to 5V	Available, see setup wizard for configuration
C1-39	---	---	---	Analog 11	Shift Switch	100K pullup to 5V	Available, see setup wizard for configuration
C1-40	---	---	AUX 6	Analog 12	ModeSwitch	100K pullup to 5V	Available, see setup wizard for configuration
C1-41	3-7	A1-28	---	Sensor +5V	Sensor +5V	Regulated, fused +5V supply for sensor power	Analog sensor power

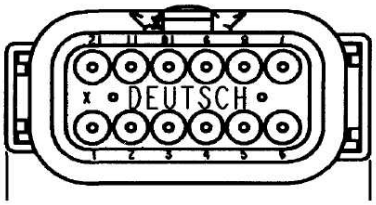
C1-42	2-22	A2-91	---	Sensor +5V	Sensor +5V	Regulated, fused +5V supply for sensor power	Analog sensor power
C1-43	---	---	---	Highside 1	Highside Switch	0.7A max, High Side Solid State Relay	Available, see setup wizard for configuration
C1-44	---	---	AUX 8	Highside 0	Highside Switch	0.7A max, High Side Solid State Relay	Available, see setup wizard for configuration
C1-45	3-45	A1-46	---	VR0+	Crank VR+	Differential variable reluctance zero cross detection	See setup wizard for configuration
C1-46	3-46	A1-47	---	VR0-	Crank VR-	Differential variable reluctance zero cross detection	See setup wizard for configuration
C1-47	---	---	---	VR1-	---	Differential variable reluctance zero cross detection	See setup wizard for configuration
C1-48	---	---	---	VR1+	---	Differential variable reluctance zero cross detection	See setup wizard for configuration
C1-49	---	---	---	VR2+	Non Driven Left Wheel Speed Sensor	Differential variable reluctance zero cross detection	See setup wizard for configuration
C1-50	---	---	---	VR2-	Non Driven Left Wheel Speed Sensor	Differential variable reluctance zero cross detection	See setup wizard for configuration
C1-51	---	---	---	VR3-	Driven Left Wheel Speed Sensor	Differential variable reluctance zero cross detection	See setup wizard for configuration
C1-52	---	---	---	VR3+	Driven Left Wheel Speed Sensor	Differential variable reluctance zero cross detection	See setup wizard for configuration
C1-53	1-9	A1-120	---	Harness_HBridge0_0	HBridge0_0	5.0A max Throttle Control Hbridge Drive	+12V to close
C1-54	1-7	A1-121	---	Harness_HBridge0_1	HBridge0_1	5.0A max Throttle Control Hbridge Drive	+12V to open
C1-55	1-4, 1-5, 1-6, 5-5	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	---	GND	Power Ground	Power Ground	Battery ground
C1-56	3-28	A1-27	---	Injector 6	Injector 6	Saturated or peak and hold, 3A max continuous	Injector 6
C1-57	3-2	A1-65	---	Injector 5	Injector 5	Saturated or peak and hold, 3A max continuous	Injector 5
C1-58	3-27	A1-25	---	Injector 4	Injector 4	Saturated or peak and hold, 3A max continuous	Injector 4
C1-59	3-15	A1-26	---	Injector 3	Injector 3	Saturated or peak and hold, 3A max continuous	Injector 3
C1-60	1-4, 1-5, 1-6, 5-5	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	---	GND	Power Ground	Power Ground	Battery ground
C1-61	1-8	A1-3, A1-4, A1-5	---	+12V	+12V	12 Volt Power From Relay	Relay must be controlled by +12V relay control signal from pin C1-29
C1-62	3-40	A1-6	---	Injector 2	Injector 2	Saturated or peak and hold, 3A max continuous	Injector 2
C1-63	3-41	A1-7	---	Injector 1	Injector 1	Saturated or peak and hold, 3A max continuous	Injector 1
C1-64	1-8	A1-3, A1-4, A1-5	---	+12V	+12V	12 Volt Power From Relay	Relay must be controlled by +12V relay control signal from pin C1-29
C1-65	1-1	A2-98, A2-106	---	+12V Ignition Switch	Ignition Switch	10K Pulldown	Full time battery power must be available at C1-10 before this input is triggered.

C1-66	3-22	A-51	---	Analog Temp 1	Coolant Temperature	2.49K pullup to 5V	See setup wizard for configuration
C1-67	3-34	A1-70	---	Analog Temp 2	Intake Air Temperature	2.49K pullup to 5V	See setup wizard for configuration
C1-68	3-5	A1-48	---	Analog Temp 3	Oil Temperature	2.49K pullup to 5V	See setup wizard for configuration
C1-69	---	---	---	Stepper 2A	Stepper 2A	Programmable Stepper Driver, up to 28V and ±1.4A	Be sure that each internal coil of the stepper motor are properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-70	---	---	---	Stepper 1A	Stepper 1A	Programmable Stepper Driver, up to 28V and ±1.4A	Be sure that each internal coil of the stepper motor are properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-71	---	---	---	Stepper 2B	Stepper 2B	Programmable Stepper Driver, up to 28V and ±1.4A	Be sure that each internal coil of the stepper motor are properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-72	---	---	---	Stepper 1B	Stepper 1B	Programmable Stepper Driver, up to 28V and ±1.4A	Be sure that each internal coil of the stepper motor are properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-73	1-4, 1-5, 1-6, 5-5	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	---	GND	Power Ground	Power Ground	Battery ground
C2-1	---	---	---	Harness_HBridge1_0	HBridge1_0	5.0A max Throttle Control Hbridge Drive	+12V to close
C2-2	---	---	---	Harness_HBridge1_1	HBridge1_1	5.0A max Throttle Control Hbridge Drive	+12V to open
C2-3	1-4, 1-5, 1-6, 5-5	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	---	GND	Power Ground	Power Ground	Battery ground
C2-4	---	---	---	Injector 7	Injector 7	Saturated or peak and hold, 3A max continuous	Injector 7
C2-5	---	---	---	Injector 8	Injector 8	Saturated or peak and hold, 3A max continuous	Injector 8
C2-6	---	---	---	Injector 9	Injector 9	Saturated or peak and hold, 3A max continuous	Injector 9
C2-7	---	---	---	Injector 10	Injector 10	Saturated or peak and hold, 3A max continuous	Injector 10
C2-8	---	---	---	GND	Power Ground	Power Ground	Battery ground
C2-9	---	---	---	+12V	+12V	12 Volt Power From Relay	Relay must be controlled by +12V relay control signal from pin C1-29
C2-10	---	---	---	Injector 11	Injector 11	Saturated or peak and hold, 3A max continuous	Injector 11
C2-11	---	---	---	Injector 12	Injector 12	Saturated or peak and hold, 3A max continuous	Injector 12
C2-12	---	---	---	Analog 17	Available	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU.

C2-13	4-8	A1-21	---	Analog 18	Accelerator Position 1	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU. Monitor DBW_APP1 [%]
C2-14	4-13	A1-15	---	Analog 19	Accelerator Position 2	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU. Monitor DBW_APP2 [%]
C2-15	---	---	AUX 9	Analog Temp 4	Charge Out Temperature	2.49K pullup to 5V	Available, see setup wizard for configuration
C2-16	2-21	A2-90	---	Analog Temp 5	Airbox Temperature	2.49K pullup to 5V	Main input to blower fan control
C2-17	---	---	---	Analog Temp 6	Fuel Temperature	2.49K pullup to 5V	Available
C2-18	---	---	---	Analog 13	Oil Pressure	100k pullup to 5V	See setup wizard for configuration
C2-19	---	---	---	Analog 14	Traction Control Mode/Sensitivity	100k pullup to 5V	See setup wizard for configuration
C2-20	---	---	---	Analog 15	Exhaust Back Pressure	100k pullup to 5V	See setup wizard for configuration
C2-21	3-8	A1-49	---	Analog 16	Throttle Position 2	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU. Monitor DBW1_TPSB [%]
C2-22	4-14	A1-20	---	Sensor +5V	Sensor +5V	Regulated, fused +5V supply for sensor power	Analog sensor power
C2-23	4-9	A1-19	---	Sensor +5V	Sensor +5V	Regulated, fused +5V supply for sensor power	Analog sensor power
C2-24	3-10	A1-13	---	Sensor +5V	Sensor +5V	Regulated, fused +5V supply for sensor power	Analog sensor power
C2-25	---	---	---	VR5+	Driven Right Wheel Speed Sensor	Differential variable reluctance zero cross detection	See setup wizard for configuration
C2-26	---	---	---	VR5-	Driven Right Wheel Speed Sensor	Differential variable reluctance zero cross detection	See setup wizard for configuration
C2-27	---	---	---	VR4-	Non Driven Right Wheel Speed Sensor	Differential variable reluctance zero cross detection	See setup wizard for configuration
C2-28	---	---	---	VR4+	Non Driven Right Wheel Speed Sensor	Differential variable reluctance zero cross detection	See setup wizard for configuration
C2-29	---	---	---	Lowside 9	Available	Lowside switch, 4A max with internal flyback diode, 2.2K 12V pullup. Inductive load should NOT have full time power	Available, see setup wizard for configuration
C2-30	3-37, 3-50	A1-11	---	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
C2-31	4-7	A1-58	---	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
C2-32	4-12	A1-14	---	Sensor Ground	Sensor Ground	Dedicated analog ground	Dedicated analog ground
C2-33	3-23	A-52	---	Analog 20	Mass Airflow Sensor B1	100k pullup to 5V	Do not connect signals referenced to +12V as this can permanently damage the ECU.
C2-34	---	---	---	Analog 21	3 Step Enable/TPS 2B	100k pullup to 5V	See setup wizard for configuration
C2-35	---	---	---	Analog 22	USB Log Switch	100k pullup to 5V	See setup wizard for configuration
C2-36	---	---	---	Analog 23	Charge Out Pressure	100k pullup to 5V	See setup wizard for configuration

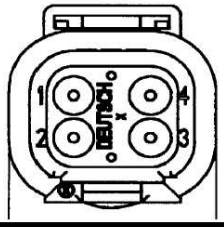
C2-37	---	---	AUX 12	Digital 6	N2O Switch/Staged Switch/MAF/Start Enable	No Pullup	Available, see setup wizard for configuration
C2-38	---	---	---	Digital 7	N2O Switch/Staged Switch/MAF/Start Enable	No Pullup	Available, see setup wizard for configuration
C2-39	1-4, 1-5, 1-6, 5-5	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	---	GND	Power Ground	Power Ground	Battery ground
C2-40	1-4, 1-5, 1-6, 5-5	A2-94, A2-95, A2-96, A2-97, A2-115, A2-116, A2-117	---	GND	Power Ground	Power Ground	Battery ground
C2-41	4-36	A1-72	---	CAN B +	CAN B +	Dedocated high speed CAN tranceiver	Porsche CAN bus communication
C2-42	4-37	A1-73	---	CAN B -	CAN B -	Dedocated high speed CAN tranceiver	Porsche CAN bus communication
C2-43	---	A1-63	AUX 10	Lowside 8	Available	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power
C2-44	4-20	A1-41	---	Lowside 7	Coolant Fan 2	Lowside switch, 1.7A max with internal flyback diode. Inductive load should NOT have full time power.	Available, see setup wizard for configuration
C2-45	2-10	A2-88	---	UEGO 2 VM	UEGO 2 VM	UEGO 2 VM	O2 sensor 2 ground
C2-46	2-16	A2-89	---	UEGO 2 UN	UEGO 2 UN	UEGO 2 UN	O2 sensor 2 signal
C2-47	2-24	A2-87	---	UEGO 2 IP	UEGO 2 IP	UEGO 2 IP	O2 sensor 2 pump current regulator
C2-48	2-6	A2-86	---	UEGO 2 IA	UEGO 2 IA	UEGO 2 IA	O2 sensor 2 pump current regulator
C2-49	2-13	A2-118	---	UEGO 2 Heat	UEGO 2 Heat	UEGO 2 Heat	O2 sensor 2 heater
C2-50	---	---	---	+12V R8C CPU	+12V Perm Power	Dedicated Power CPU	Full time battery power
C2-51	---	---	---	Ignition Coil 7	Ignition Coil 7	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C2-52	---	---	---	Ignition Coil 8	Ignition Coil 8	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C2-53	---	---	---	Ignition Coil 9	Ignition Coil 9	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C2-54	---	---	---	Ignition Coil 10	Ignition Coil 10	25 mA max source current	0-5V Falling edge fire. DO NOT connect directly to coil primary. Must use an ignitor OR CDI that accepts a FALLING edge fire signal.
C2-55	---	---	---	Highside 2	Highside Switch	0.7A max, High Side Solid State Relay	Available, see setup wizard for configuration
C2-56	---	---	---	Highside 3	Highside Switch	0.7A max, High Side Solid State Relay	Available, see setup wizard for configuration

AUX Connector Pinouts



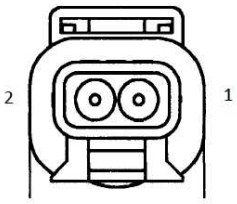
PIN	DESTINATION	DESCRIPTION
1	A1-31	Sensor Ground
2	A1-29	+5V Ref
3	A1-3	+12V From Relay
4	C1-37	Analog 9
5	C1-36	Analog 8
6	C1-40	Analog 12
7	C1-26	Digital 5
8	C1-44	Highside 0
9	C2-15	Analog Temp 4
10	C1-43	Lowside 8
11	C1-25	Digital 4
12	C2-37	Digital 6

A = Infinity Adapter Connector
C = Infinity ECU Connector



PIN	DESTINATION	DESCRIPTION
1	C1-32	CAN A+
2	C1-31	CAN A-
3	SP-2	+12V Relay Power
4	SP-1	Ground

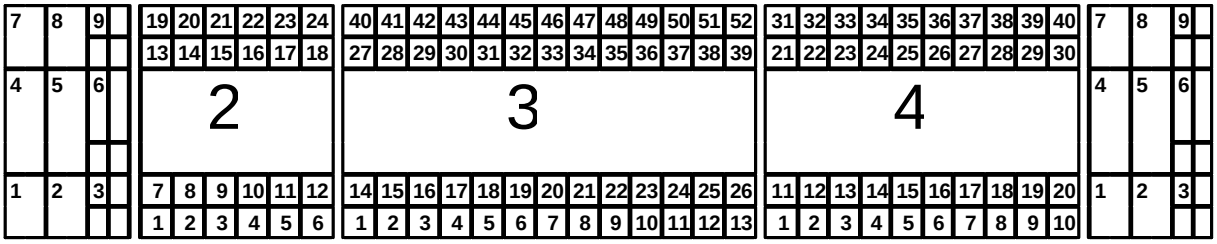
A = Infinity Adapter Connector
SP = Splice



PIN	DESTINATION	DESCRIPTION
1	C1-9	Flash Enable
2	A2-100	Permanent +12V Power

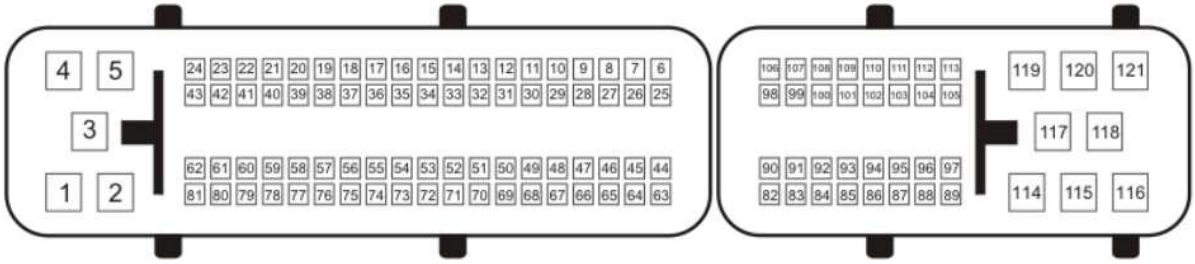
A = Infinity Adapter Connector
C = Infinity ECU Connector

Porsche Pin Numbering



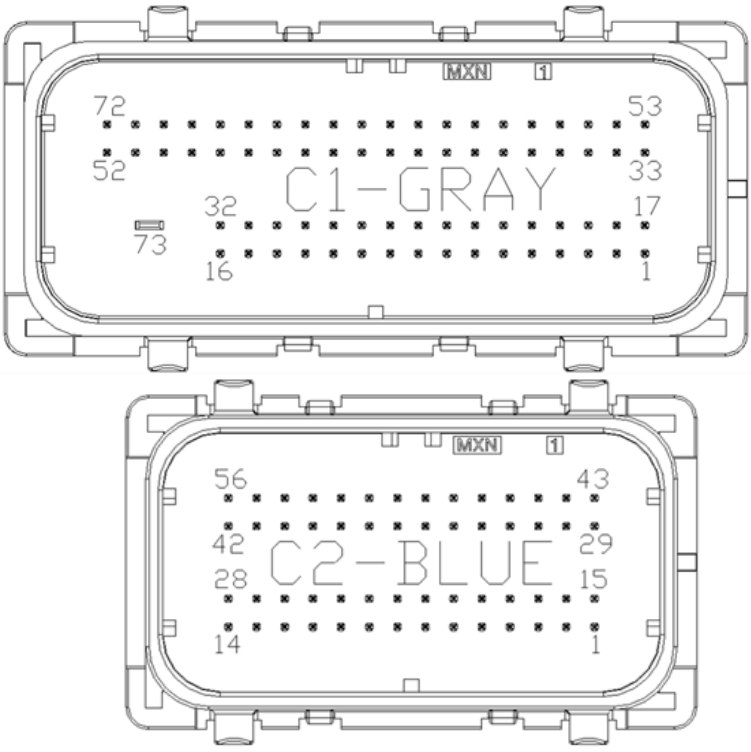
Porsche Connectors Viewed from Wire Side

Adapter Pin Numbering



Adapter Connectors Viewed from Wire Side

Infinity Pin Numbering



AEM Infinity Connectors Viewed from Wire Side

12 MONTH LIMITED WARRANTY

AEM Performance Electronics warrants to the consumer that all AEM ELECTRONICS products will be free from defects in material and workmanship for a period of twelve months from date of the original purchase. Products that fail within this 12-month warranty period will be repaired or replaced when determined by AEM that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement, at AEM's discretion, of the AEM Electronics part. In no event shall this warranty exceed the original purchase price of the AEM ELECTRONICS part nor shall AEM ELECTRONICS be responsible for special, incidental or consequential damages or cost incurred due to the failure of this product.

Warranty claims to AEM ELECTRONICS must be transportation prepaid and accompanied by dated proof of purchase. This warranty applies only to the original purchaser of product and is non-transferable. All implied warranties shall be limited in duration to the said 12-month warranty period. Improper use or installation, accident, abuse, unauthorized repairs or alterations voids this warranty.

AEM ELECTRONICS disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured by AEM ELECTRONICS.

Warranty returns will only be accepted by AEM ELECTRONICS when accompanied by a valid Return Merchandise Authorization (RMA) number. Product must be received by AEM ELECTRONICS within 30 days of the date the RMA is issued. UEGO oxygen sensors are considered wear items and are not covered under warranty.

Please note that before AEM ELECTRONICS can issue an RMA for any electronic product, it is first necessary for the installer or end user to contact the tech line at 1-800-423-0046 to discuss the problem. Most issues can be resolved over the phone. Under no circumstances should a system be returned, or an RMA requested before the above process transpires. AEM ELECTRONICS will not be responsible for products that are installed incorrectly, installed in a non-approved application, misused, or tampered with. Fuel Pumps installed with incorrect polarity (+&- wires crossed) will not be warranted. Proper fuel filtration before and after the fuel pump are essential to fuel pump life. Any pump returned with contamination will not be warranted.

Any AEM ELECTRONICS product, excluding discontinued products, can be returned for repair if it is out of the warranty period. There is a minimum charge for inspection and diagnosis of AEM ELECTRONICS parts which are out of warranty. Parts used in the repair of AEM ELECTRONICS electronic components will be extra. AEM ELECTRONICS will provide an estimate of repairs and must receive written or electronic authorization before repairs are made to the product.

Need additional help? Contact the AEM Performance Electronics tech department at 1-800-423-0046 or email us at tech@aemelectronics.com.