

Instruction Manual



P/N 30-3520 2003–2006 Nissan 350Z/Infiniti G35 Manual Transmission Plug & Play Adapter Harness



STOP!

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

THIS PRODUCT MAY BE USED SOLELY ON VEHICLES USED IN SANCTIONED COMPETITION WHICH MAY NEVER BE USED UPON A PUBLIC ROAD OR HIGHWAY, UNLESS PERMITTED BY SPECIFIC REGULATORY EXEMPTION. (VISIT THE "EMISSIONS" PAGE AT [HTTP://WWW.SEMASAN.COM/EMISSIONS](http://www.semasan.com/emissions) FOR STATE BY STATE DETAILS.)

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: This installation is not for the tuning novice! Use this system with **EXTREME** caution! The AEM Infinity Programmable EMS allows for total flexibility in engine tuning. Misuse or improper tuning of this product can destroy your engine! If you are not well versed in engine dynamics and the tuning of engine management systems **DO NOT** attempt the installation. Refer the installation to an AEM-trained tuning shop or call 800-423-0046 for technical assistance.

NOTE: All supplied AEM calibrations, Wizards and other tuning information are offered as potential starting points only. **IT IS THE RESPONSIBILITY OF THE ENGINE TUNER TO ULTIMATELY CONFIRM IF THE CALIBRATION IS SAFE FOR ITS INTENDED USE.** AEM holds no responsibility for any engine damage that results from the misuse or mistuning of this product!

AEM Performance Electronics
AEM Performance Electronics, 2205 126th Street Unit A, Hawthorne, CA 90250
Phone: (310) 484-2322 Fax: (310) 484-0152
<http://www.aemelectronics.com>
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OVERVIEW

This Infinity EMS kit was designed for the 2003–2006 Nissan 350Z (manual transmission), 2003–2006 Infiniti G35 (manual transmission). The kit is “plug and play” so no cutting or splicing is necessary. The base configuration files available for the Infinity ECU are starting points only and will need to be modified for your specific application.

Included in these instructions are descriptions of important differences between using the factory Nissan/Infiniti ECU and using the AEM Infinity ECU. For example, the cruise control feature is not supported with the AEM Infinity, but the cruise control buttons are available for miscellaneous inputs such as hi/low boost, traction control, 2-step rev limiter, etc.

NOTE: The Flash Enable connector (described in page-11) 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

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. Nissan 350Z and Infiniti G35 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 Nissan 350Z and Infiniti G35

- 7107-XXXX-66 Infinity 710 Nissan 350Z (XXXX = serial number)
- 7110-XXXX-67 Infinity 708 Nissan 350Z (XXXX = serial number)

OPTIONS

30-2001 UEGO Wideband O2 Sensor

Bosch LSU4.2 Wideband O2 Sensor that connects to AEM 30-3600 UEGO Wideband O2 Sensor Extension Harness

30-3600 UEGO Wideband O2 Sensor Extension Harness

Extension harness to connect AEM UEGO Wideband O2 sensor to 6-pin Deutsch

30-3602 IP67 Logging Cable

USB A-to-A extension cable: 39" long with right angled connector and bayonet style lock

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

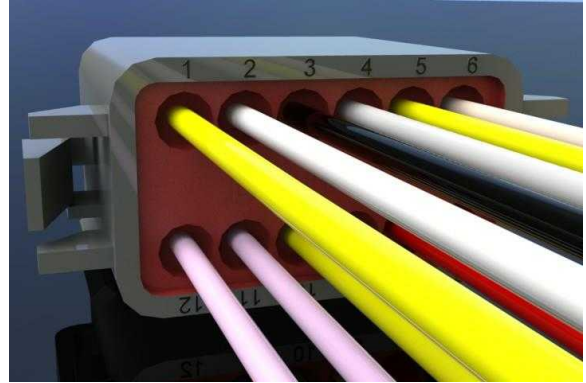
Included with the 350Z/G35 kit is an adapter harness. This is used to make the connection between the AEM Infinity EMS and the 350Z/G35 wiring harness plug and play. This is depicted below with the 73-pin and 56-pin connectors and the 350Z/G35 header. There are also a few other integrated connectors within this harness described below.



Lambda #1 and Lambda #2 plugs are for connecting UEGO wideband Bosch LSU4.2 sensors (AEM 30-2001) for 2003-2004.5 models only. The UEGO extension harness (AEM 30-3600) mates the adapter harness to the sensor (1 required for each sensor used). The AEM Infinity EMS supports the OEM UEGO sensors on 2004.5+ vehicles through the plug and play harness. The Lambda #1, Lambda #2, and Battery+12V connections above can be ignored on 2004.5+ applications (assuming the OEM UEGO systems have been left untouched).

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 2-pin Flash Enable connector is used as a secondary hardware flashing option by jumping the two wires together using the included shunt connector. Note: Flashing will normally be performed in the software not using this connector.



Integrated in the 350Z/G35 PnP harness is an “auxiliary” connector. This is a Deutsch DTM 12P connector (shown on right) and 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: Pin numbering is molded into the connector, as shown.

Available I/O	Typical Use	Notes	Component	Wiring
Fuel Press	This is used for monitoring fuel pressure input to the Infinity. It can also be used to increase or decrease injector fuel pulse to compensate for a failing fuel pump.	Typical electronic fuel injection fuel pressure varies from 30-100psi.	AEM carries 0-5V fuel pressure sensors (sold separately).	This wire goes directly to the signal wire of the pressure sensor.
Air Temp	Air temperature is typically used for fuel and ignition timing correction.	The 350Z/G35 comes standard with a MAF sensor which has an integrated intake air temperature sensor. This wire is run in parallel with the stock sensor. This means if an aftermarket sensor is to be wired using this pin, the factory MAF sensor must be disconnected or else the signal will be skewed drastically.	AEM carries air temperature sensors (sold separately). However, the Infinity can accept any thermistor sensor and can be calibrated in the Infinity Tuner software.	Intake air temp sensors have two wires with no polarity.

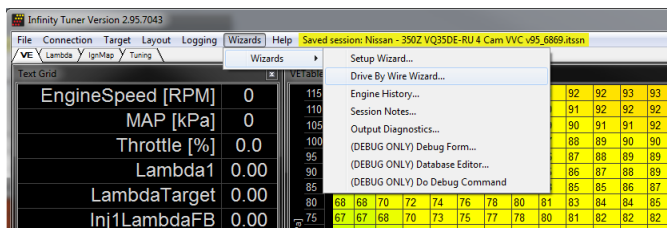
Available I/O	Typical Use	Notes	Component	Wiring
Sensor Ground	Isolated ground for inputs.	This is not the same as a power ground or chassis ground.	This is shared for the Fuel Press, Air Temp, MAP (Manifold Press), Ethanol Sensor, etc.	This should be wired to the ground pin of the following: Fuel Press, Air Temp, MAP, and Ethanol Sensor.
5V Reference	5 volt supply for the following aux inputs.	When measured with a voltmeter, it is normal to not measure exactly 5V.	This is shared for the Fuel Press, MAP (Manifold Press), and Ethanol Sensor inputs.	This should be wired to the voltage reference pin of the following: Fuel Press, MAP, and Ethanol Sensor.
MAP (Manifold Press)	Manifold pressure is used for speed density fuel calculation, ignition timing correction, O ₂ feedback, boost control, variable valve control, ancillary outputs, etc.	Electronic fuel injection is calculated in absolute pressure not gauge pressure.	AEM carries MAP sensors (sold separately). However, the Infiniti can accept any 0–5V pressure sensor and can be calibrated in the Infiniti Tuner software.	This should be wired directly to the MAP sensor's signal pin.
Ethanol Sensor	This is used for customers who are converting their vehicle to utilize ethanol fuels such as E85 or E98.	This digital input can be used for other functions as well.	The GM Fuel Composition Sensor (FCS) is the most commonly used for converting a vehicle to flex fuel.	This pin needs to be wired directly to the signal pin of the fuel composition sensor.
Boost Control Solenoid	This is used to operate a 12V PWM solenoid.	Boost control solenoids can be normally open (NO) or normally closed (NC). This will change the duty cycle strategy but is also depends upon how the wastegate is plumbed with hoses.	AEM carries boost control solenoids (sold separately). However, the Infiniti can control most factory boost control solenoids.	Solenoids have two wires and have no polarity.
Power from Relay	Can be used for many things, however, this 12V source was implemented to be paired with the Boost Control Solenoid.	This 12V is coming through the vehicle's main relay.	Because of using shared power, this should only be used for low current electronics.	N/A
High Side Output	Can be used to activate the 12V side of a solenoid	If attempting to drive a component over 4amps, a relay must be used.	The Infiniti can directly drive an electronic component up to 4amps max, such as a boost solenoid.	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.

Available I/O	Typical Use	Notes	Component	Wiring
Boost Target Trim Selector Input	Can be used for to trigger multiple boost targets.	This analog input can be used for other functions as well.	AEM 12 Position Universal Trim Pot (or typical potentiometer). Can also be used with any simple ON/OFF switch.	This wire should be routed to the signal output of the component. If used with a simple ON/OFF switch, route the opposite terminal to an Infinity sensor ground.
Oil Temperature	Oil temperature is typically used for engine protection and logging.	This analog input can be used for other functions as well.	AEM carries temperature sensors (sold separately). However, the Infinity can accept any thermistor sensor and can be calibrated in the Infinity Tuner software.	Intake air temp sensors have two wires with no polarity.
No Lift Shift Trigger	Cutting fuel and/or cutting spark and/or retarding ignition timing when shifting gears without releasing the throttle pedal.	Cut time is typically 200–300mS. Ignition retard is typically 20degree with a 50mS ramp-in time after the fuel cut. Ignition cut is not commonly used.	AEM 12 Position Universal Trim Pot (or typical potentiometer). Can also be used with any simple ON/OFF switch.	This wire should be routed to the signal output of the component. If used with a simple ON/OFF switch, route the opposite terminal to an Infinity sensor ground.

DRIVE-BY-WIRE

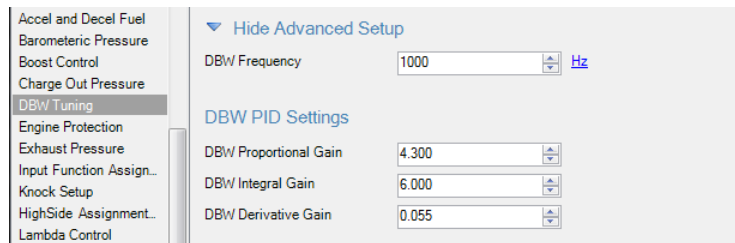
The VQ35DE engine uses a single throttle body controlled via drive-by-wire (DBW).

The AEM Infinity supports traction control methods using DBW, fuel cut, and/or spark cut.



As shown, there is a Drive By Wire Wizard that needs to be setup in order to calibrate the specific Nissan/Infiniti pedal and throttle position sensors accurately. When connected to the Infinity EMS with the engine OFF, go to Plug-in | Wizards | Drive By Wire Wizard... Once the wizard is selected, follow the step-by-step instructions.

Note that there is also a DBW Tuning section in the Plug-in | Wizards | Setup Wizard... However, most of the channels in here will already be set up properly from the AEM base session file.



There are a few integrated DBW fail safes incorporated into the Infinity system. For instance, if the accelerator pedal and throttle position sensors do not track each other, or if the maximum DBW current is exceeded, there will be a fatal error which will kill the engine for safety purposes. If the fatal error triggers, the AEM Infinity notifies the driver by illuminating the Engine Malfunction Lamp (EML). This error will reset when the ignition key is cycled or if the problem is fixed.

CAN BUS

The AEM Infinity EMS for the 2003-2006 Nissan 350Z and Infiniti G35 supports the majority of the OEM features including: Tachometer, Coolant Temperature Gauge, MIL light, coolant fans, steering angle, steering rate, brake pressure, brake switch, wheel speed sensors, vehicle speed, A/C Request Button, and Fuel Consumption gauge (MPG).

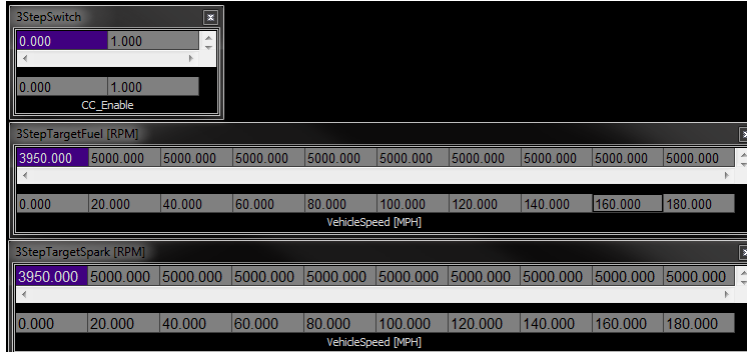


Rather than OBD2 diagnostics, the SES-Service Engine Soon light is now dedicated to the AEM “MILOutput” feature. The AEM MILOutput activates if any one of the following inputs are in an error state: air temp, baro pressure, coolant temp, exhaust back pressure, fuel pressure, UEGO #1, UEGO #2, MAF analog, 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 Diagnostics.

The AEM traction control utilizes the CAN wheel speed sensors: CAN_FLWS [MPH], CAN_FRWS [MPH], CAN_RLWS [MPH], and CAN_RRWS [MPH]. The following steering channels are only for data logging: CAN_STEERANGLE [deg], CAN_STEERRATE [deg/s], CAN_Brake_Pressure [bar], and CAN_BrakeSwitch.

CRUISE CONTROL

Currently, a cruise control feature is not supported with the AEM Infinity. However, the multi-functional steering wheel buttons are available for miscellaneous purposes described below. There are 4 buttons: Accel/Res, Coast/Set, On/Off, and Cancel.



The On/Off button now engages the 3-step rev limiter

channel “CC_Enable”. 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. To operate,

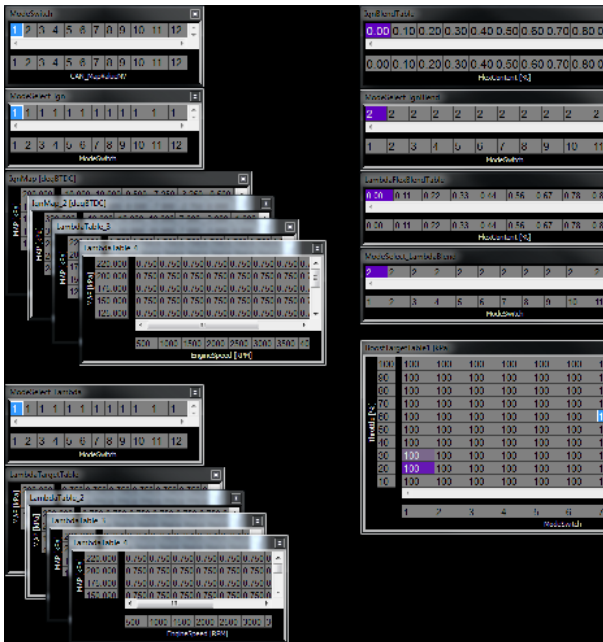
first be sure the 3StepSwitch table is set to recognize the “momentary” Enable button, as shown. Set the 3StepTargetFuel and/or the 3StepTargetSpark table’s first (0 MPH) cell to the desired launch RPM. When the Enable button is held down, the EMS will limit the engine’s corresponding RPM. Once the car is launched and the EMS begins to register vehicle speed, the RPM limit can then be tailored to prevent wheel spin using these tables.

The Cancel button is used as an AEM traction control switch. The latching Cancel button changes the TC_SlipTargetTrim 1-axis lookup table (shown).

TC_SlipTargetTrim [MPH]										
0.000	205.000	205.000	205.000	205.000	205.000	205.000	205.000	205.000	205.000	205.000
0.000	1.000	2.000	3.000	4.000	5.000	6.000	7.000	8.000	9.000	10.000
CAN_LatchedCCSet										

Simultaneously, the Cruise Control “Set” icon on the dash is illuminated 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 Nissan On/Off button is either OFF (0) or ON (1), only the first two cells of the table is used. Two possible traction scenarios, for example, could be ON/OFF or aggressive/nonaggressive.





The steering wheel's Accel/Res button and Coast/Set momentary buttons can increment and decrement the map switching function "ModeSwitch". This feature is extremely flexible as it can be used to switch VE tables, ignition maps, lambda targets, and boost levels.

When the Accel/Res button or Coast/Set button is depressed (or when KeyOn occurs) the tachometer displays 1K, 2K, 3K, 4K, 5K, 6K, 7K, 8K (for 500mS) representing the currently selected value of ModeSwitch. Because of the Nissan/Infiniti tachometer range, 1–8 are the only valid values (9–12 are not used for this application).

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 Accel/Res button or Coast/Set button could be mistakenly bumped.

In order to use this feature, care must be taken into account when setting up the tables and tuning. Simply enter the number of the table into the corresponding mode selection table for each feature (VE tables, ignition maps, lambda targets, and boost levels).

VARIABLE VALVE CONTROL (VVC)

The AEM Infinity system supports Nissan's 2 cam variable valve timing equipped engines (VQ35DE) and 4 cam variable valve timing equipped engines (VQ35DE-RU). The base calibration is configured with base VVC settings that may need adjustment.

VVC Enable

To the right is the "VVC" page of the setup wizard configured for a 4 cam VVC equipped engine (VQ35DE-RU). Two cam VVC equipped engines will only use "VVC1A" and "VVC1B".

VVC Cam Sync

Cam sync is similar to ignition sync on an engine. Before setting cam sync, be sure VVC cam assignments are set properly. With all VVC channels disabled (VVC enable boxes unchecked), start the engine. The intake cam(s) should be at a parked retard position and the exhaust cam(s) should be at a parked advance position. These points will serve as 0 timing reference for the VVC system. Adjust cam sync values now until each cam timing registers as close to "0" as possible. The provided VQ35DE-RU values should only require minimal adjustment.

Lowside Setup:

The lowside outputs should be configured as follows for proper VVC operation:

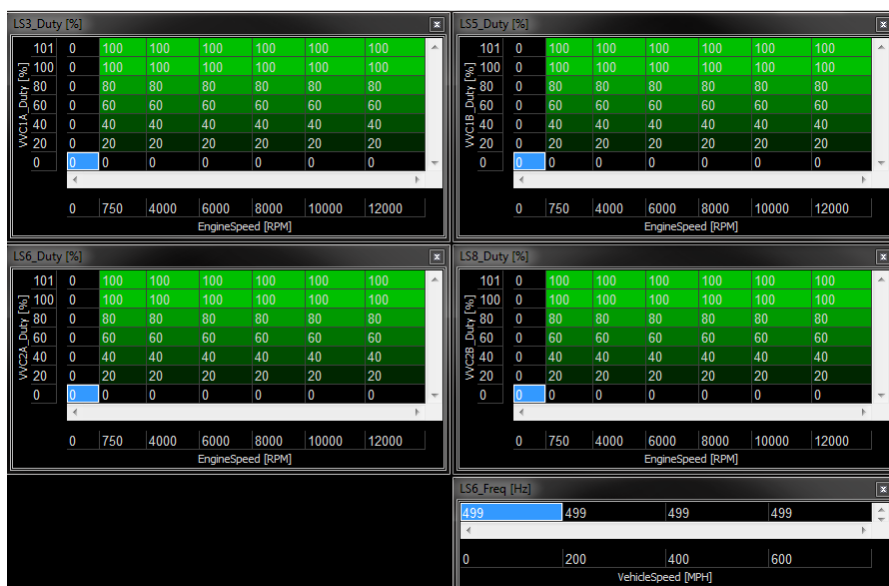
- VVC1A = Lowside 3
- VVC1B = Lowside 5
- VVC2A = Lowside 6
- VVC2B = Lowside 8
- VVC 1 Frequency = 300 Hz
- VVC 2 Frequency = 1000 Hz

LS3 Setup
Lowside Switch 3 is located on pin C1-18. Configure the table 'LS3_Duty [%]' to adjust the duty cycle of the output.
LS3 Frequency: 300 Hz
LS3_Duty X-Axis: EngineSpeed [RPM]
LS3_Duty Y-Axis: VVC1A_Duty [%]

LS5 Setup
Lowside Switch 5 is located on pin C1-2. Configure the table 'LS5_Duty [%]' to adjust the duty cycle of the output.
LS5 Frequency: 300 Hz
LS5_Duty X-Axis: EngineSpeed [RPM]
LS5_Duty Y-Axis: VVC1B_Duty [%]

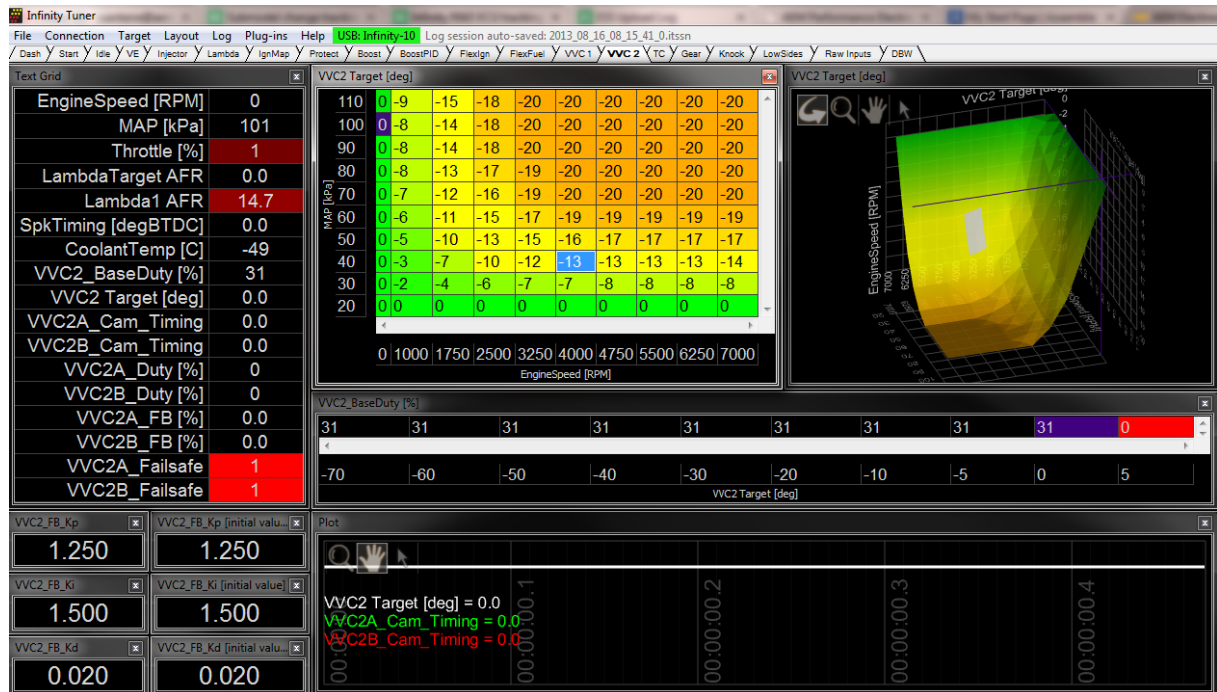
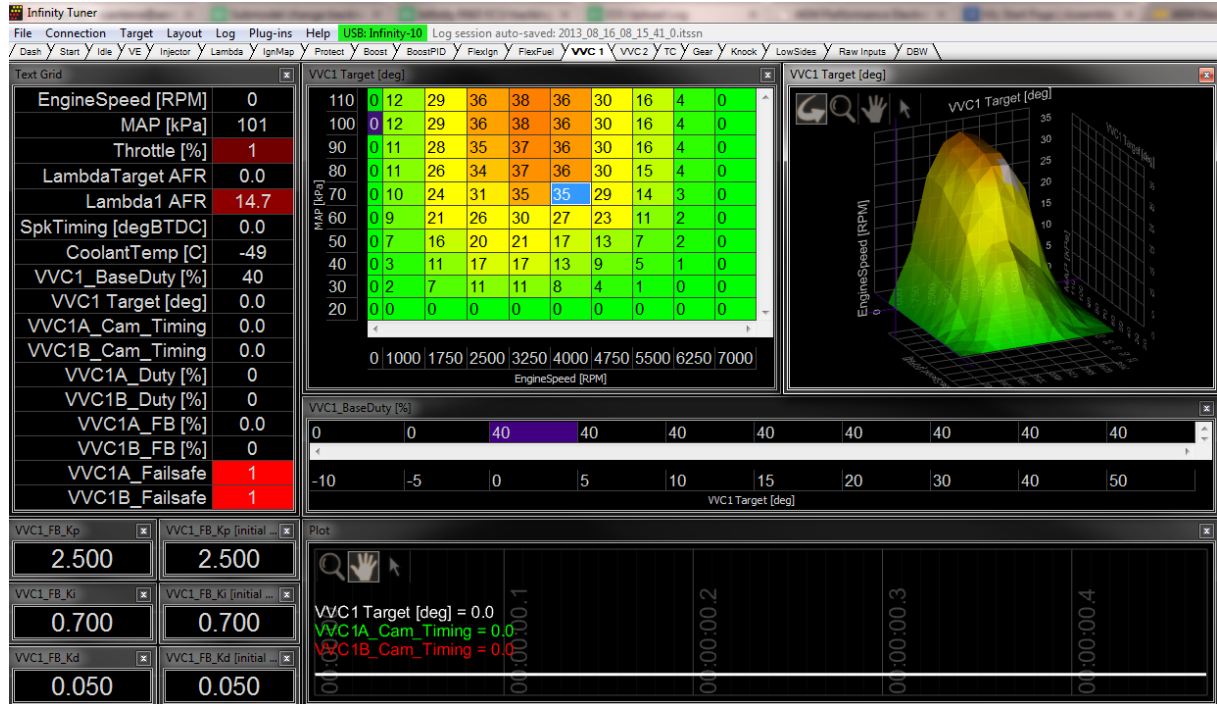
LS6 Setup
Lowside Switch 6 is located on pin C1-3. Configure the table 'LS6_Duty [%]' to adjust the duty cycle of the output.
LS6 Frequency: 500 Hz
LS6_Duty X-Axis: EngineSpeed [RPM]
LS6_Duty Y-Axis: VVC2A_Duty [%]

LS8 Setup
Lowside Switch 8 is located on pin C2-43. Configure the table 'LS8_Duty [%]' to adjust the duty cycle of the output.
LS8 Frequency: 500 Hz
LS8_Duty X-Axis: EngineSpeed [RPM]
LS8_Duty Y-Axis: VVC2B_Duty [%]



VVC Tuning

Below are two Infinity Tuner tabs that illustrate VVC tunability. If the VVC system is not following its target properly, adjustments to VVC base duty and/or the VVC PID gains may be required.



INFINITY EMS INSTALLATION

*Shown on a 2006 Nissan 350Z. Your installation may vary depending on year/model.

Step 1

Carefully remove the passenger side runner kick panel by firmly pulling upwards to release it from the clips holding it in.



Step 2

Remove the passenger foot-well kick panel by removing the circled 10mm plastic nut and firmly pulling the panel out to release it from the clips.



Step 3

Remove the small storage tray by pulling it out and inserting a small flathead screwdriver to release the locking clip.



Step 4

Remove the 10mm bolt above the auxiliary power socket.



Step 5

Remove the circled Phillips screw on the bottom right side of the panel cover.



Step 6

Once the fasteners have been removed from the panel, firmly pull the panel outward to release it from the locking clips.



Step 7

Once the panel has been released, remove the connector from the auxiliary power socket and set the panel aside.



Step 8

Remove the factory ECU connector and remove the two 10mm nuts circled. Remove the ECU with the ECU bracket.



Step 9

Once the ECU and bracket are free, remove the three 10mm bolts holding the factory ECU to the bracket. Remove the ECU from the bracket.



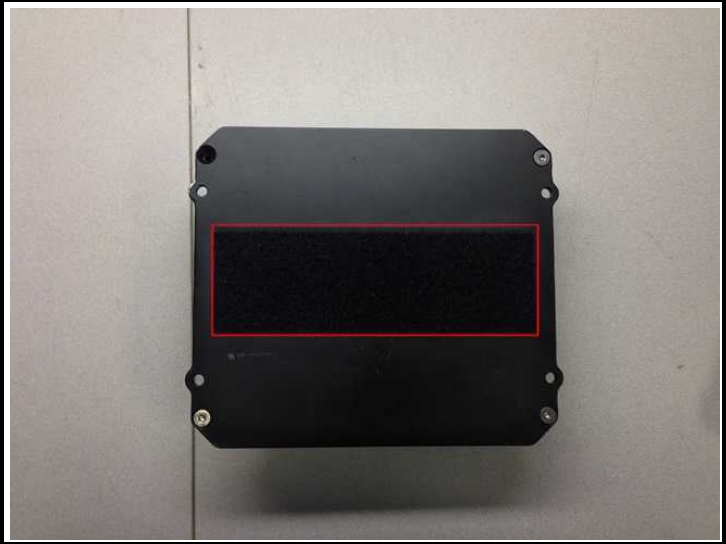
Step 10

Place a strip of velcro on the ECU bracket as shown.



Step 11

Place a strip of velcro on the AEM Infinity as shown.



Step 12

Affix the AEM Infinity to the ECU bracket as shown.



Step 13

Connect the adapter harness and USB cables (not shown) to the AEM Infinity.



Step 14

Loosely install the ECU bracket with the AEM Infinity back into the vehicle. It may be necessary to push factory wire looms or other components out of the way to make room for the AEM Infinity.



Step 15

Connect the AEM Infinity adapter harness to the factory ECU connector and any ancillary sensors now.



Step 16

Tuck the adapter harness header and factory ECU connector in the corner as shown. Affix the mating connector using velcro or wire ties. Re-install the two 10mm nuts securing the ECU bracket.



Step 17

Re-install all trim coverings in the reverse order.



PINOOTS

Nissan 350Z/Infiniti G35 Pinout

350Z/G35 PIN	2003 350Z & G35 Coupe (M/T)	2004 350Z & G35 Coupe (M/T)	2004.5 350Z & G35 Coupe M/T	2005 350Z M/T	2005 350Z Track, 35th & G35 M/T	2006 350Z & G35 Coupe M/T	Description	Infiniti Pin Name	Infiniti
1	ECM Ground	ECM Ground	ECM Ground	ECM Ground	ECM Ground	ECM Ground	Main power ground	GND	C2-39, 40
2	O2 Sensor 1 heater (bank2)	O2 Sensor 1 heater (bank2)	UEGO H-1	UEGO H-1	UEGO H-1	UEGO H-1	PWM LS heater signal (12V is supplied independently of ECU.)	UEGO1 Heat	C1-4
3	DBW Power In (from relay p104)	DBW Power In (from relay p104)	DBW Power In (from relay p104)	DBW Power In (from relay p104)	DBW Power In (from relay p104)	DBW Power In (from relay p104)	High current 12V input, switched on/off by DBW relay (p104)	+12V	C2-9
4	DBW (close)	DBW (close)	DBW (close)	DBW (close)	DBW (close)	DBW (close)	12V PWM DBW Control	HBridge0_0	C1-53
5	DBW (open)	DBW (open)	DBW (open)	DBW (open)	DBW (open)	DBW (open)	12V PWM DBW Control	HBridge0_1	C1-54
6	O2 Sensor 2 heater (bank2)	O2 Sensor 2 heater (bank2)	O2 Sensor 2 heater (bank2)	O2 Sensor 2 heater (bank2)	O2 Sensor 2 heater (bank2)	O2 Sensor 2 heater (bank2)	PWM LS heater signal (12V is supplied independently of ECU.)	---	---
7	---	---	---	---	---	---	---	---	---
8	---	---	---	---	eVTC Exh Ret (bank 2)	eVTC Exh Ret (bank 2)	~10 ohm, 0% = full advance, 100% = full retard	LS9	C2-29
9	---	---	---	---	eVTC Exh Ret (bank 1)	eVTC Exh Ret (bank 1)	~10 ohm, 0% = full advance, 100% = full retard	LS8	C2-43
10	iVTC int sol (bank 2)	iVTC int sol (bank 2)	iVTC int sol (bank 2)	iVTC int sol (bank 2)	iVTC int sol (bank 2)	iVTC int sol (bank 2)	~7 ohm, 0% = full retard, 100% = full advance, 50% = hold	LS5	C1-2
11	iVTC int sol (bank 1)	iVTC int sol (bank 1)	iVTC int sol (bank 1)	iVTC int sol (bank 1)	iVTC int sol (bank 1)	iVTC int sol (bank 1)	~7 ohm, 0% = full retard, 100% = full advance, 50% = hold	LS3	C1-18
12	Pwr steering pressure	Pwr steering pressure	Pwr steering pressure	Pwr steering pressure	Pwr steering pressure	Pwr steering pressure	0–5V Analog Input	Ana23	C2-36
13	Crank position sensor	Crank position sensor	Crank position sensor	Crank position sensor	Crank position sensor	Crank position sensor	12V Hall Sensor	Digital 0 - Crank	C1-21
14	Cam sensor (bank2)	Cam sensor (bank2)	Cam sensor (bank2)	Cam sensor (bank2)	Cam sensor (bank2)	Cam sensor (bank2)	Hall Sensor	Digital 2 - Cam2	C1-23
15	Knock sensor	Knock sensor	Knock sensor	Knock sensor	Knock sensor	Knock sensor	Piezoelectric sensor, single sensor located in valley of engine.	Knock 0	C1-27
16	Oxygen sensor 1 (bank2)	Oxygen sensor 1 (bank2)	UEGO UN-1	UEGO UN-1	UEGO UN-1	UEGO UN-1	UEGO	UEGO1 UN	C1-7

350Z/G3 5 PIN	2003 350Z & G35 Coupe (M/T)	2004 350Z & G35 Coupe (M/T)	2004.5 350Z & G35 Coupe M/T	2005 350Z M/T	2005 350Z Track, 35th & G35 M/T	2006 350Z & G35 Coupe M/T	Description	Infinity Pin Name	Infinity
17	---	---	---	---	---	---	---	---	---
18	---	---	---	---	---	---	---	---	---
19	---	---	---	---	---	---	---	---	---
20	---	---	---	---	---	---	---	---	---
21	Injector 5	Injector 5	Injector 5	Injector 5	Injector 5	Injector 5	High Impedance injectors, 290cc @ 43.5psi	Injector 5	C1-57
22	Injector 3	Injector 3	Injector 3	Injector 3	Injector 3	Injector 3	High Impedance injectors, 290cc @ 43.5psi	Injector 3	C1-59
23	Injector 1	Injector 1	Injector 1	Injector 1	Injector 1	Injector 1	High Impedance injectors, 290cc @ 43.5psi	Injector 1	C1-63
24	O2 Sensor 1 heater (bank1)	O2 Sensor 1 heater (bank1)	UEGO H- 2	UEGO H- 2	UEGO H- 2	UEGO H- 2	PWM LS heater signal (12V is supplied independently of ECU.)	UEGO2 Heat	C2-49
25	O2 Sensor 2 heater (bank1)	O2 Sensor 2 heater (bank1)	O2 Sensor 2 heater (bank1)	O2 Sensor 2 heater (bank1)	O2 Sensor 2 heater (bank1)	O2 Sensor 2 heater (bank1)	PWM LS heater signal (12V is supplied independently of ECU.)	---	---
26	---	---	---	---	---	---	---	---	---
27	---	---	---	---	---	---	---	---	---
28	---	---	---	---	---	---	---	---	---
29	---	---	---	---	---	---	---	---	---
30	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---
32	EVAP pressure sensor	EVAP pressure sensor	EVAP pressure sensor	EVAP pressure sensor	EVAP pressure sensor	EVAP pressure sensor	0-5V Analog Input	Ana17	C2-12
33	Cam sensor (bank1)	Cam sensor (bank1)	Cam sensor (bank1)	Cam sensor (bank1)	Cam sensor (bank1)	Cam sensor (bank1)	Hall Sensor	Digital 1 - Cam1	C1-22
34	Intake Air Temp	Intake Air Temp	Intake Air Temp	Intake Air Temp	Intake Air Temp	Intake Air Temp	Thermister input	Temp 2 - Air Temp (Manifold)	C1-67
35	Oxygen Sensor 1 (bank1)	Oxygen Sensor 1 (bank1)	UEGO VM-1	UEGO VM-1	UEGO VM-1	UEGO VM-1	UEGO	UEGO1 VM	C1-8
36	---	---	---	---	---	---	---	---	---
37	---	---	---	---	---	---	---	---	---
38	---	---	---	---	---	---	---	---	---

350Z/G35 5 PIN	2003 350Z & G35 Coupe (M/T)	2004 350Z & G35 Coupe (M/T)	2004.5 350Z & G35 Coupe M/T	2005 350Z M/T	2005 350Z Track, 35th & G35 M/T	2006 350Z & G35 Coupe M/T	Description	Infinity Pin Name	Infinity
39	---	---	---	---	---	---	---	---	---
40	Injector 6	Injector 6	Injector 6	Injector 6	Injector 6	Injector 6	High Impedance injectors, 290cc @ 43.5psi	Injector 6	C1-56
41	Injector 4	Injector 4	Injector 4	Injector 4	Injector 4	Injector 4	High Impedance injectors, 290cc @ 43.5psi	Injector 4	C1-58
42	Injector 2	Injector 2	Injector 2	Injector 2	Injector 2	Injector 2	High Impedance injectors, 290cc @ 43.5psi	Injector 2	C1-62
43	---	---	---	---	---	---	---	---	---
44	---	---	---	---	---	---	---	---	---
45	EVAP canister purge solenoid	EVAP canister purge solenoid	EVAP canister purge solenoid	EVAP canister purge solenoid	EVAP canister purge solenoid	EVAP canister purge solenoid	PWM LS signal (12V is supplied independently of ECU)	LowsideSwitch9	C2-29
46	---	---	---	---	---	---	---	---	---
47	Vcc (TPS)	Vcc (TPS)	Vcc (TPS)	Vcc (TPS)	Vcc (TPS)	Vcc (TPS)	5V Sensor Vcc	+5V_Out	C1-41
48	Vcc (EVAP pressure sensor)	Vcc (EVAP pressure sensor)	Vcc (EVAP pressure sensor)	Vcc (EVAP pressure sensor)	Vcc (EVAP pressure sensor)	Vcc (EVAP pressure sensor)	5V Sensor Vcc	+5V_Out	C1-42
49	Vcc (ref rigeran t pressure)	Vcc (ref rigeran t pressure)	Vcc (ref rigeran t pressure)	Vcc (ref rigeran t pressure)	Vcc (ref rigeran t pressure)	Vcc (ref rigeran t pressure)	5V Sensor Vcc	+5V_Out	C2-22
50	TPS1	TPS1	TPS1	TPS1	TPS1	TPS1	0–5V Analog Input	Ana7 - Throttle	C1-35
51	MAF	MAF	MAF	MAF	MAF	MAF	0–5V Analog Input	Ana20 - MAF Analog	C2-33
52	---	---	---	---	---	---	---	---	---
53	---	---	---	---	eVTC Exh Pos (bank 1)	eVTC Exh Pos (bank 1)	12V Hall signal. 3 even, short, pulses per cycle	Digital 4	C1-25
54	---	---	---	---	---	---	---	---	---
55	Oxy gen Sensor 2 (bank2)	Oxy gen Sensor 2 (bank2)	Oxy gen Sensor 2 (bank2)	Oxy gen Sensor 2 (bank2)	Oxy gen Sensor 2 (bank2)	Oxy gen Sensor 2 (bank2)	0–5V Analog Input	---	---
56	---	---	UEGO IP- 1	UEGO IP- 1	UEGO IP- 1	UEGO IP- 1	UEGO	UEGO1 IP	C1-6
57	---	---	UEGO VM- 2	UEGO VM- 2	UEGO VM- 2	UEGO VM- 2	UEGO	UEGO2 VM	C2-45
58	---	---	UEGO IP- 2	UEGO IP- 2	UEGO IP- 2	UEGO IP- 2	UEGO	UEGO2 IP	C2-47
59	---	---	---	---	---	---	---	---	---
60	ignition 5	ignition 5	ignition 5	ignition 5	ignition 5	ignition 5	TTL Coil signal	Coil 5	C1-16

350Z/G35 PIN	2003 350Z & G35 Coupe (MT)	2004 350Z & G35 Coupe (MT)	2004.5 350Z & G35 Coupe MT	2005 350Z MT	2005 350Z Track, 35th & G35 MT	2006 350Z & G35 Coupe MT	Description	Infinity Pin Name	Infinity
61	ignition 3	ignition 3	ignition 3	ignition 3	ignition 3	ignition 3	TTL Coil signal	Coil 3	C1-12
62	ignition 1	ignition 1	ignition 1	ignition 1	ignition 1	ignition 1	TTL Coil signal	Coil 1	C1-14
63	---	---	---	---	---	---	---	---	---
64	---	---	---	---	---	---	---	---	---
65	---	---	---	---	---	---	---	---	---
66	Sensor ground (tps)	Sensor ground (tps)	Sensor ground (tps)	Sensor ground (tps)	Sensor ground (tps)	Sensor ground (tps)	Sensor Ground	Sensor GND	C1-19
67	Sensor ground	Sensor ground	Sensor ground	Sensor ground	Sensor ground	Sensor ground	Sensor Ground	Sensor GND	C1-20
68	Vcc (power steering pressure)	Vcc (power steering pressure)	Vcc (power steering pressure)	Vcc (power steering pressure)	Vcc (power steering pressure)	Vcc (power steering pressure)	5V Sensor Vcc	+5V_Out	C2-23
69	TPS 2	TPS 2	TPS 2	TPS 2	TPS 2	TPS 2	0-5V Analog Input	Ana16 - Throttle2	C2-21
70	Refrigerant pressure sensor	Refrigerant pressure sensor	Refrigerant pressure sensor	Refrigerant pressure sensor	Refrigerant pressure sensor	Refrigerant pressure sensor	0-5V Analog Input	Ana22	C2-35
71	---	---	---	---	---	---	---	---	---
72	---	---	---	---	eVTC Exh Pos (bank 2)	eVTC Exh Pos (bank 2)	12V Hall signal. 3 even, short, pulses per cycle	Digital 3	C1-24
73	Coolant temperature	Coolant temperature	Coolant temperature	Coolant temperature	Coolant temperature	Coolant temperature	Thermister input	Temp 1 - Coolant Temp	C1-66
74	Oxygen Sensor 2 (bank1)	Oxygen Sensor 2 (bank1)	Oxygen Sensor 2 (bank1)	Oxygen Sensor 2 (bank1)	Oxygen Sensor 2 (bank1)	Oxygen Sensor 2 (bank1)	0-5V Analog Input	---	---
75	---	---	UEGO IA-1	UEGO IA-1	UEGO IA-1	UEGO IA-1	UEGO	UEGO1 IA	C1-5
76	---	---	UEGO UN-2	UEGO UN-2	UEGO UN-2	UEGO UN-2	UEGO	UEGO2 UN	C2-46
77	---	---	UEGO IA-2	UEGO IA-2	UEGO IA-2	UEGO IA-2	UEGO	UEGO2 IA	C2-48
78	Sensor gnd (O2 Sensor)	Sensor gnd (O2 Sensor)	Sensor gnd (O2 Sensor)	Sensor gnd (O2 Sensor)	Sensor gnd (O2 Sensor)	Sensor gnd (O2 Sensor)	Sensor Ground	Sensor GND	C2-30
79	ignition 6	ignition 6	ignition 6	ignition 6	ignition 6	ignition 6	TTL Coil signal	Coil 6	C1-15
80	ignition 4	ignition 4	ignition 4	ignition 4	ignition 4	ignition 4	TTL Coil signal	Coil 4	C1-11
81	ignition 2	ignition 2	ignition 2	ignition 2	ignition 2	ignition 2	TTL Coil signal	Coil 2	C1-13

350Z/G35 PIN	2003 350Z & G35 Coupe (M/T)	2004 350Z & G35 Coupe (M/T)	2004.5 350Z & G35 Coupe M/T	2005 350Z M/T	2005 350Z Track, 35th & G35 M/T	2006 350Z & G35 Coupe M/T	Description	Infiniti Pin Name	Infiniti
82	Sensor ground (APP 1)	Sensor ground (APP 1)	Sensor ground (APP 1)	Sensor ground (APP 1)	Sensor ground (APP 1)	Sensor ground (APP 1)	Sensor Ground	Sensor GND	C2-31
83	Sensor ground (APP 2)	Sensor ground (APP 2)	Sensor ground (APP 2)	Sensor ground (APP 2)	Sensor ground (APP 2)	Sensor ground (APP 2)	Sensor Ground	Sensor GND	C2-32
84	---	---	---	---	---	---	---	---	---
85	DATA Link Connector	DATA Link Connector	Data link Connector	Data link Connector	Data link Connector	Data link Connector	ISO/KWP (Pin 7 on OBD 2 Connector)	---	---
86	CAN L (w/120 ohm resistor)	CAN L (w/120 ohm resistor)	CAN L (w/120 ohm resistor)	CAN L (w/120 ohm resistor)	CAN L (w/120 ohm resistor)	CAN L (w/120 ohm resistor)	Terminated CAN node	CAN B -	C2-42
87	---	---	---	---	---	---	---	---	---
88	---	---	---	---	---	---	---	---	---
89	---	---	---	---	---	---	---	---	---
90	Vcc (APP 1)	Vcc (APP 1)	Vcc (APP 1)	Vcc (APP 1)	Vcc (APP 1)	Vcc (APP 1)	5V Sensor Vcc	+5V_Out	C2-24
91	Vcc (APP 2)	Vcc (APP 2)	Vcc (APP 2)	Vcc (APP 2)	Vcc (APP 2)	Vcc (APP 2)	5V Sensor Vcc	+5V_Out	C2-24
92	---	---	---	---	---	---	---	---	---
93	---	---	---	---	---	---	---	---	---
94	CAN H (w/120 ohm resistor)	CAN H (w/120 ohm resistor)	CAN H (w/120 ohm resistor)	CAN H (w/120 ohm resistor)	CAN H (w/120 ohm resistor)	CAN H (w/120 ohm resistor)	Terminated CAN node	CAN B +	C2-41
95	---	---	---	---	---	---	---	---	---
96	---	---	---	---	---	---	---	---	---
97	---	---	---	---	---	---	---	---	---
98	APP 2	APP 2	APP 2	APP 2	APP 2	APP 2	0–5V Analog Input	Ana19 - APP 2	C2-14
99	ASCD steering switch	ASCD steering switch	ASCD steering switch	ASCD steering switch	ASCD steering switch	ASCD steering switch	Use 2.49k Thermister input. ~0v=Main, ~0.5v=Cancel, ~1v=set/coast, ~1.9v=Res/Acc, otherwise ~3.1v	Temp 4 - ChargeOutTemp	C2-15
100	---	---	---	---	---	---	---	---	---
101	stop lamp switch	stop lamp switch	stop lamp switch	stop lamp switch	stop lamp switch	stop lamp switch	0V released, 12V when pressed	Digital 6 - (no P/U)	C2-37

350Z/G35 PIN	2003 350Z & G35 Coupe (MT)	2004 350Z & G35 Coupe (MT)	2004.5 350Z & G35 Coupe MT	2005 350Z MT	2005 350Z Track, 35th & G35 MT	2006 350Z & G35 Coupe MT	Description	Infinity Pin Name	Infinity
102	PNP switch	PNP switch	PNP switch	PNP switch	PNP switch	Neutral Safety Switch	Grounds when in Neutral, otherwise O/C	Digital 5 -	C1-26
103	---	---	---	---	---	---	---	---	---
104	DBW motor relay (LS)	DBW motor relay (LS)	DBW motor relay (LS)	DBW motor relay (LS)	DBW motor relay (LS)	DBW motor relay (LS)	LS to activate	12V_Relay_Control	C1-29 (splice)
105	---	---	---	---	---	---	---	---	---
106	APP 1	APP 1	APP 1	APP 1	APP 1	APP 1	0-5V Analog Input	Ana18 - APP 1	C2-13
107	Fuel tank temp	Fuel tank temp	Fuel tank temp	Fuel tank temp	Fuel tank temp	Fuel tank temp	Thermister, 20C = 2.3-2.7Kohm, 50C = 790-900ohm	Temp 6 - Trans/FuelTemp	C2-17
108	ACSD brake switch	ACSD brake switch	ACSD brake switch	ACSD brake switch	ACSD brake switch	ACSD brake switch	12V when on, OC when off	Digital 7 - ClutchSwitch (no P/U)	C2-38
109	Ignition switch	Ignition switch	Ignition switch	Ignition switch	Ignition switch	Ignition switch	12V when "ON" or "Cranking"	+12V SW (Ign Switch)	C1-65
110	---	---	---	---	---	---	---	---	---
111	Main Relay Control (LS)	Main Relay Control (LS)	Main Relay Control (LS)	Main Relay Control (LS)	Main Relay Control (LS)	Main Relay Control (LS)	LS to activate	12V_Relay_Control	C1-29 (splice)
112	---	---	---	---	---	---	---	---	---
113	Fuel Pump Relay (LS)	Fuel Pump Relay (LS)	Fuel Pump Relay (LS)	Fuel Pump Relay (LS)	Fuel Pump Relay (LS)	Fuel Pump Relay (LS)	LS to activate	LowsideSwitch0 fuel pump	C1-34
114	---	---	---	---	---	---	---	---	---
115	ECM ground	ECM ground	ECM ground	ECM ground	ECM ground	ECM ground	Main power ground	GND	C1-55, 60, 73
116	ECM ground	ECM ground	ECM ground	ECM ground	ECM ground	ECM ground	Main power ground	GND	C2-3, 8
117	EVAP vent control valve	EVAP vent control valve	EVAP vent control valve	EVAP vent control valve	EVAP vent control valve	EVAP vent control valve	LS to activate	LowsideSwitch7 Spare GPO1	C2-44
118	---	---	---	---	---	---	---	---	---
119	Power (from Main Relay)	Power (from Main Relay)	Power (from Main Relay)	Power (from Main Relay)	Power (from Main Relay)	Power (from Main Relay)	12V input, switched on/off by main relay (p111)	+12V	C1-61
120	Power (from Main Relay)	Power (from Main Relay)	Power (from Main Relay)	Power (from Main Relay)	Power (from Main Relay)	Power (from Main Relay)	12V input, switched on/off by main relay (p111)	+12V	C1-64

350Z/G35 PIN	2003 350Z & G35 Coupe (MT)	2004 350Z & G35 Coupe (MT)	2004.5 350Z & G35 Coupe MT	2005 350Z MT	2005 350Z Track, 35th & G35 MT	2006 350Z & G35 Coupe MT	Description	Infinity Pin Name	Infinity
121	Perm Power	Perm Power	Perm Power	Perm Power	Perm Power	Perm Power	12V perm power	+12V Perm Power	C1-10

Infinity Pinouts

Dedicated	Dedicated and not reconfigurable
Assigned	Assigned but reconfigurable
Available	Available for user setup
Not Applicable	Not used in this configuration
Required	Required for proper function

Infinity Pin	Hardware Reference	2003–2006 350Z/G35 Specification	Dest. Pin 350Z/G3 5	Hardware Specification	Notes
C1-1	Harness_LowsideSwitch_4	A/C Compressor Clutch Relay		Lowside switch, 1.7A max, NO internal fly back diode.	See Setup Wizard Page LowSide Assignment Tables for activation criteria.
C1-2	Harness_LowsideSwitch_6	VVC2A Solenoid Control	9	Lowside switch, 6A max with internal fly back diode. Inductive load should NOT have full time power.	See Setup Wizard Page LowSide Assignment Tables for activation criteria.
C1-3	Harness_LowsideSwitch_5	VVC1B Solenoid Control	10	Lowside switch, 6A max with internal fly back diode. Inductive load should NOT have full time power.	See Setup Wizard Page LowSide Assignment Tables for activation criteria.
C1-4	Harness_UEGO_Heat_1	UEGO 1 Heat	2	Bosch UEGO controller	Lowside switch for UEGO heater control. Connect to pin 4 of Bosch UEGO sensor. NOTE that pin 3 of the Sensor is heater (+) and must be powered by a fused/switched 12V supply.
C1-5	Harness_UEGO_IA_1	UEGO 1 IA	75		Trim Current signal. Connect to pin 2 of Bosch UEGO sensor.
C1-6	Harness_UEGO_IP_1	UEGO 1 IP	56		Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor.
C1-7	Harness_UEGO_UN_1	UEGO 1 UN	16		Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor.
C1-8	Harness_UEGO_VM_1	UEGO 1 VM	35		Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
C1-9	Harness_Flash_Enable	Harness Flash Enable		10K pulldown	Not usually needed for automatic firmware updates through Infinity Tuner. If connection errors occur during update, connect 12 volts to this pin before proceeding with upgrade. Disconnect the 12 volts signal after the update.
C1-10	+12V_R8C_CPU	Battery Perm Power	121	Dedicated power management CPU	Full time battery power. MUST be powered before the ignition switch input is triggered (See C1-65).

Infinity Pin	Hardware Reference	2003–2006 350Z/G35 Specification	Dest. Pin 350Z/G35	Hardware Specification	Notes
C1-11	Harness_Coil_3	Coil 4	80	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	Harness_Coil_2	Coil 3	61	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	Harness_Coil_1	Coil 2	81	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	Harness_Coil_0	Coil 1	62	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	Harness_Coil_5	Coil 6	79	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	Harness_Coil_4	Coil 5	60	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	Harness_LowsideSwitch_2	Rad Fan 1	NC	Lowside switch, 1.7A max, NO internal flyback diode.	See Setup Wizard Page LowSide Assignment Tables for activation criteria.
C1-18	Harness_LowsideSwitch_3	VVC1A	11	Lowside switch, 6A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page LowSide Assignment Tables for activation criteria.
C1-19	AGND_1	Sensor Ground	66	Dedicated analog ground	Analog 0–5V sensor ground
C1-20	AGND_1	Sensor Ground	67	Dedicated analog ground	Analog 0–5V sensor ground
C1-21	Harness_Digital_In_0	Crankshaft Position Sensor Hall	13	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.
C1-22	Harness_Digital_In_1	Camshaft Position Sensor 1 Hall	33	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.
C1-23	Harness_Digital_In_2	Camshaft Position Sensor 2 Hall	14	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.
C1-24	Harness_Digital_In_3	Camshaft Position Sensor 4 Hall	72	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.
C1-25	Harness_Digital_In_4	Camshaft Position Sensor 3 Hall	53	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.

Infinity Pin	Hardware Reference	2003–2006 350Z/G35 Specification	Dest. Pin 350Z/G35	Hardware Specification	Notes
C1-26	Harness_Digital_In_5	Flex Fuel		10K pullup to 12V. Will work with ground or floating switches.	See channel FlexDigitalIn [Hz] for raw frequency input data.
C1-27	Harness_Knock_In_0	Knock Sensor 1	15	Dedicated knock signal processor	See Setup Wizard page Knock Setup for options.
C1-28	Harness_Knock_In_1	Knock Sensor 2	NC	Dedicated knock signal processor	See Setup Wizard page Knock Setup for options.
C1-29	Harness_+12V_Relay_Control	+12V Relay Control	104, 111	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	Power Ground	Ground		Power Ground	Connect directly to battery ground.
C1-31	Harness_CANL_Aout	AEMNet CANL		Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-32	Harness_CANH_Aout	AEMNet CANH		Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-33	Harness_LowsideSwitch_1	Boost Control		Lowside switch, 1.7A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard page Boost Control for options. Monitor BoostControl [%] channel for output state.
C1-34	Harness_LowsideSwitch_0	Fuel Pump 2	113	Lowside switch, 1.7A max, NO internal flyback diode.	Switched ground. Will prime for 2 seconds at key on and activate if RPM > 0.
C1-35	Harness_Analog_In_7	Throttle Position Sensor 1	50	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Drive by Wire Wizard for calibration.
C1-36	Harness_Analog_In_8	MAP Sensor		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard Set Manifold Pressure page for setup and calibration. Monitor the MAP [kPa] channel.
C1-37	Harness_Analog_In_9	Fuel Pressure		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard Fuel Pressure page for setup and calibration. Monitor the FuelPressure [psig] channel.

Infinity Pin	Hardware Reference	2003–2006 350Z/G35 Specification	Dest. Pin 350Z/G35	Hardware Specification	Notes
C1-38	Harness_Analog_In_10	Baro Sensor		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Setup Wizard Barometric Pressure page for setup and calibration. Monitor the BaroPress [kPa] channel.
C1-39	Harness_Analog_In_11	Shift Switch Input		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the 1-axis lookup table ShiftSwitch for setup.
C1-40	Harness_Analog_In_12	Boost Mode		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the BoostModeAnalogIn channel for input state. A multi-position rotary switch such as AEM P/N 30-2056 is recommended.
C1-41	+5V_Out_1	+5V Out TPS	47	Regulated, fused +5V supply for sensor power	Analog sensor power
C1-42	+5V_Out_1	+5V Out EVAP Press	48	Regulated, fused +5V supply for sensor power	Analog sensor power
C1-43	Harness_HighsideSwitch_1	Spare Highside (switched 12V)		0.7A max, High Side Solid State Relay	See Setup Wizard page Spare Highside for configuration options. See 2 axis lookup table Spare_HS for activation settings.
C1-44	Harness_HighsideSwitch_0	VTEC		0.7A max, High Side Solid State Relay	+12V High Side Drive. See Setup Wizard Honda VTEC page for options.
C1-45	Harness_VR+_In_0	Crankshaft Position Sensor VR+		Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page Cam/Crank for options.
C1-46	Harness_VR-_In_0	Crankshaft Position Sensor VR-			See Setup Wizard page Cam/Crank for options.
C1-47	Harness_VR-_In_1	Camshaft Position Sensor 1 VR-		Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page Cam/Crank for options.
C1-48	Harness_VR+_In_1	Camshaft Position Sensor 1 VR+			See Setup Wizard page Cam/Crank for options.
C1-49	Harness_VR+_In_2	Non Driven Left Wheel Speed Sensor +		Differential Variable Reluctance Zero Cross Detection	See Non Driven Wheel Speed Calibration in the Setup Wizard Vehicle Speed page.
C1-50	Harness_VR-_In_2	Non Driven Left Wheel Speed Sensor -			

Infinity Pin	Hardware Reference	2003–2006 350Z/G35 Specification	Dest. Pin 350Z/G35	Hardware Specification	Notes
C1-51	Harness_VR-_In_3	Driven Left Wheel Speed Sensor -		Differential Variable Reluctance Zero Cross Detection	See Driven Wheel Speed Calibration in the Setup Wizard Vehicle Speed page.
C1-52	Harness_VR+_In_3	Driven Left Wheel Speed Sensor +			
C1-53	Harness_HBridge0_0	HBridge0_0	4	5.0A max Throttle Control Hbridge	+12V to Close
C1-54	Harness_HBridge0_1	HBridge0_1	5	5.0A max Throttle Control Hbridge	+12V to Open
C1-55	Power Ground	Ground	115	Power Ground	Connect directly to battery ground.
C1-56	Harness_Injector_5	Injector 6	40	Saturated or peak and hold, 3A max continuous	Injector 6
C1-57	Harness_Injector_4	Injector 5	21	Saturated or peak and hold, 3A max continuous	Injector 5
C1-58	Harness_Injector_3	Injector 4	41	Saturated or peak and hold, 3A max continuous	Injector 4
C1-59	Harness_Injector_2	Injector 3	22	Saturated or peak and hold, 3A max continuous	Injector 3
C1-60	Power Ground	Ground	115	Power Ground	Connect directly to battery ground.
C1-61	+12V	+12V In	119	12 volt power from relay	12 volt power from relay. Relay must be controlled by +12V Relay Control signal, pin C1-29 above.
C1-62	Harness_Injector_1	Injector 2	42	Saturated or peak and hold, 3A max continuous	Injector 2
C1-63	Harness_Injector_0	Injector 1	23	Saturated or peak and hold, 3A max continuous	Injector 1
C1-64	+12V	+12V In	120	12 volt power from relay	12 volt power from relay. Relay must be controlled by +12V Relay Control signal pin C1-29 above.
C1-65	Harness_+12V_SW	Ignition Switch	109	10K pulldown	Full time battery power must be available at C1-10 before this input is triggered.
C1-66	Harness_Analog_In_Temp_1	Coolant Temp Sensor	73	12 bit A/D, 2.49K pullup to 5V	See CoolantTempCal [C] table for calibration data and CoolantTemp [C] for channel data.
C1-67	Harness_Analog_In_Temp_2	Intake Air Temperature	34	12 bit A/D, 2.49K pullup to 5V	See AirTempCal [C] table for calibration data and AirTemp [C] for channel data.
C1-68	Harness_Analog_In_Temp_3	Oil Temperature Sensor		12 bit A/D, 2.49K pullup to 5V	See OilTempCal table for calibration data and OilTemp [C] for channel data.
C1-69	Harness_Stepper_2A	Stepper 2A		Programmable Stepper Driver, up to 28V and ±1.4A	Be sure that each internal coil of the stepper motor is properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.

Infinity Pin	Hardware Reference	2003–2006 350Z/G35 Specification	Dest. Pin 350Z/G35	Hardware Specification	Notes
C1-70	Harness_Stepper_1A	Stepper 1A		Programmable Stepper Driver, up to 28V and $\pm 1.4A$	Be sure that each internal coil of the stepper motor is properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-71	Harness_Stepper_2B	Stepper 2B		Programmable Stepper Driver, up to 28V and $\pm 1.4A$	Be sure that each internal coil of the stepper motor is properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-72	Harness_Stepper_1B	Stepper 1B		Programmable Stepper Driver, up to 28V and $\pm 1.4A$	Be sure that each internal coil of the stepper motor is properly paired with the 1A/1B and 2A/2B ECU outputs. Supports Bi-Polar stepper motors only.
C1-73	Power Ground	Ground	115	Power Ground	Connect directly to battery ground.
C2-1	Harness_HBridge1_0	Not used		5.0A max Throttle Control Hbridge	Not used
C2-2	Harness_HBridge1_1	Not used		5.0A max Throttle Control Hbridge	Not used
C2-3	Power Ground	Ground	116	Power Ground	Connect directly to battery ground.
C2-4	Harness_Injector_6	Injector 7		Saturated or peak and hold, 3A max continuous	Injector 7
C2-5	Harness_Injector_7	Injector 8		Saturated or peak and hold, 3A max continuous	Injector 8
C2-6	Harness_Injector_8	Injector 9		Saturated or peak and hold, 3A max continuous	NOTE: Only available with Infiniti 10 Nissan
C2-7	Harness_Injector_9	Injector 10		Saturated or peak and hold, 3A max continuous	NOTE: Only available with Infiniti 10 Nissan
C2-8	Power Ground	Ground	116	Power Ground	Connect directly to battery ground
C2-9	+12V	+12V In	3	12 volt power from relay	12 volt power from relay. Relay must be controlled by +12V Relay Control signal, pin C1-29 above.
C2-10	Harness_Injector_10	Injector 11		Saturated or peak and hold, 3A max continuous	NOTE: Only available with Infiniti 10 Nissan
C2-11	Harness_Injector_11	Injector 12		Saturated or peak and hold, 3A max continuous	NOTE: Only available with Infiniti 10 Nissan
C2-12	Harness_Analog_In_17	A/C Analog Request		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See Setup Wizard Input Functions page for input selection. See AC_Request_In 1-axis table for activation logic.

Infinity Pin	Hardware Reference	2003–2006 350Z/G35 Specification	Dest. Pin 350Z/G35	Hardware Specification	Notes
C2-13	Harness_Analog_In_18	Acceleration Pedal Position 1	106	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Drive by Wire Wizard for calibration.
C2-14	Harness_Analog_In_19	Acceleration Pedal Position 2	98	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Drive by Wire Wizard for calibration.
C2-15	Harness_Analog_In_Temp_4	Cruise Control Steering Buttons	99	12 bit A/D, 2.49K pullup to 5V	Use 1D table "CC_State_Analog" to configure.
C2-16	Harness_Analog_In_Temp_5	Airbox Temperature		12 bit A/D, 2.49K pullup to 5V	See AirboxTemp [C] table for calibration data and AirboxTemp [C] for channel data.
C2-17	Harness_Analog_In_Temp_6	Fuel Temperature	107	12 bit A/D, 2.49K pullup to 5V	See FuelTemp [C] table for calibration data and FuelTemp [C] for channel data.
C2-18	Harness_Analog_In_13	Oil Pressure		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. See Setup Wizard Oil Pressure page for setup options. See OilPressure [psig] for channel data.
C2-19	Harness_Analog_In_14	Traction Control Mode / Sensitivity		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. See the TC_SlipTrgtTrim [MPH] 1-axis table. A multi-position rotary switch such as AEM P/N 30-2056 is recommended.
C2-20	Harness_Analog_In_15	Exhaust Back Pressure		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See Setup Wizard Exhaust Pressure page for setup options. See EBPress [kPa] for channel data.
C2-21	Harness_Analog_In_16	Throttle Position Sensor 2	69	12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See the Drive by Wire Wizard for calibration.
C2-22	+5V_Out_2	+5V Out Refrigerant Press	49	Regulated, fused +5V supply sensor power	Analog sensor power
C2-23	+5V_Out_2	+5V Out Pwr Steering Press	68	Regulated, fused +5V supply for sensor power	Analog sensor power

Infinity Pin	Hardware Reference	2003–2006 350Z/G35 Specification	Dest. Pin 350Z/G35	Hardware Specification	Notes
C2-24	+5V_Out_2	+5V Out APP1/APP2	90, 91	Regulated, fused +5V supply for sensor power	Analog sensor power
C2-25	Harness_VR+_In_5	Driven Right Wheel Speed Sensor +		Differential Variable Reluctance Zero Cross Detection	See Driven Wheel Speed Calibration in the Setup Wizard Vehicle Speed page.
C2-26	Harness_VR-_In_5	Driven Right Wheel Speed Sensor -			
C2-27	Harness_VR-_In_4	Non Driven Right Wheel Speed Sensor -		Differential Variable Reluctance Zero Cross Detection	See Non Driven Wheel Speed Calibration in the Setup Wizard Vehicle Speed page.
C2-28	Harness_VR+_In_4	Non Driven Right Wheel Speed Sensor +			
C2-29	Harness_LowsideSwitch_9	Tachometer		Lowside switch, 4A max with internal flyback diode, 2.2K 12V pullup. Inductive load should NOT have full time power.	Nissan tachometer is driven via CAN bus.
C2-30	AGND_2	Sensor Ground O2	78	Dedicated analog ground	Analog 0–5V sensor ground
C2-31	AGND_2	Sensor Ground APP1	82	Dedicated analog ground	Analog 0–5V sensor ground
C2-32	AGND_2	Sensor Ground APP2	83	Dedicated analog ground	Analog 0–5V sensor ground
C2-33	Harness_Analog_In_20	MAF	51	12 bit A/D, 100K pullup to 5V	Nissan MAF sensor not currently supported
C2-34	Harness_Analog_In_21	3 Step Enable / TPS 2B		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See 3StepSwitch 1-axis table for setup.
C2-35	Harness_Analog_In_22	Refrigerant Pressure Sensor	70	12 bit A/D, 100K pullup to 5V	See "AC_Pressure [kPa]" for AC pressure configuration. Required for proper AC function.
C2-36	Harness_Analog_In_23	Charge Out Pressure		12 bit A/D, 100K pullup to 5V	0–5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. See ChargeOutPress [kPa] channel for input state. See Setup Wizard page Charge Out Pressure for calibration options.
C2-37	Harness_Digital_In_6	Stop Lamp Switch	101	No pullup. Will work with TTL signals.	See AC_Request_In 1-axis table for setup options. Input can be assigned to different pins. See Setup Wizard page Input Functions for input mapping options.

Infinity Pin	Hardware Reference	2003–2006 350Z/G35 Specification	Dest. Pin 350Z/G35	Hardware Specification	Notes
C2-38	Harness_Digital_In_7	Brake Switch	108	No pullup. Will work with TTL signals.	See ClutchSwitch 1-axis table for setup options. Input can be assigned to different pins. See Setup Wizard page Input Functions for input mapping options.
C2-39	Power Ground	Ground	1	Power Ground	Connect directly to battery ground.
C2-40	Power Ground	Ground	1	Power Ground	Connect directly to battery ground.
C2-41	Harness_CanH_Bout	CANH	94	Dedicated High Speed CAN Transceiver	Used for Nissan CAN bus
C2-42	Harness_CanL_Bout	CANL	86	Dedicated High Speed CAN Transceiver	Used for Nissan CAN bus
C2-43	Harness_LowsideSwitch_8	VVC2B	8	Lowside switch, 6A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page LowSide Assignment Tables for activation criteria.
C2-44	Harness_LowsideSwitch_7	EVAP Purge	45	Lowside switch, 1.7A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page LowSide Assignment Tables for activation criteria.
C2-45	Harness_UEGO_VM_2	UEGO 2 VM	57	Bosch UEGO Controller	Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
C2-46	Harness_UEGO_UN_2	UEGO 2 UN	76		Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor.
C2-47	Harness_UEGO_IP_2	UEGO 2 IP	58		Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor.
C2-48	Harness_UEGO_IA_2	UEGO 2 IA	77		Trim Current signal. Connect to pin 2 of Bosch UEGO sensor.
C2-49	Harness_UEGO_Heat-_2	UEGO 2 HEAT	24		Lowside switch for UEGO heater control. Connect to pin 4 of Bosch UEGO sensor. NOTE that pin 3 of the Sensor is heater (+) and must be powered by a fused/switched 12V supply.
C2-50	+12V_R8C_CPU	Battery Perm Power		Dedicated power management CPU	Optional full time battery power. MUST be powered before the ignition switch input is triggered (See C1-65).
C2-51	Harness_Coil_6	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	Harness_Coil_7	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	Harness_Coil_8	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.

Infinity Pin	Hardware Reference	2003–2006 350Z/G35 Specification	Dest. Pin 350Z/G35	Hardware Specification	Notes
C2-54	Harness_Coil_9	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	Harness_HighsideSwitch_2/Harness_Coil_10	Fuel Pump 1		Multi-function pin depending on hardware configuration	+12V High Side Drive. Will prime for 2 seconds at key on and activate if RPM > 0.
C2-56	Harness_HighsideSwitch_3/Harness_Coil_11	Not used		Multi-function pin depending on hardware configuration	Not used

AUX Connector Pinout

Deutsch Pin	Infinity Pin	Wire Color	Pin Name	Default Pin Function
1	C1-37	Yellow	Harness_Analog_In_9	Fuel Press
2	C1-67	White	Harness_Analog_In_Temp_2	Intake Air Temp
3	C1-19	Black	AGND_2	Sensor Ground
4	C1-41	Gray	+5V_OUT_1	Sensor +5V
5	C1-36	Yellow	Harness_Analog_In_8	Manifold Pressure
6	C1-26	Tan	Harness_Digital_In_5	Flex Fuel Sensor (Hz)
7	C1-33	Pink	Harness_LowsideSwitch_1	Boost Control
8	C1-64	Orange	+12V	+12V
9	C1-44	Dark Green	Harness_HighsideSwitch_0	HS0
10	C1-40	Yellow	Harness_Analog_In_12	Boost Switch
11	C1-68	Pink	Harness_Analog_In_Temp_3	Oil Temp
12	C1-39	Yellow	Harness_Analog_In_11	No Lift Shift Trigger

Miscellaneous Connector Pinouts

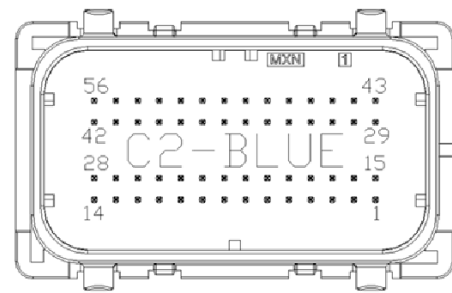
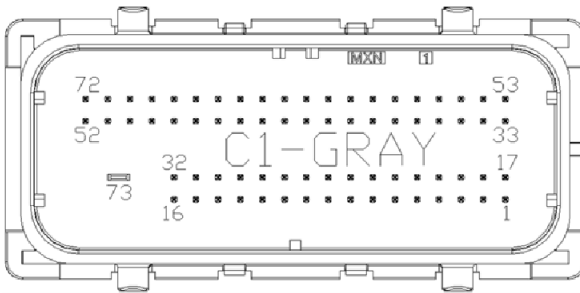
LAMBDA 1		
Deutsch Pin	Infinity Pin	Default Pin Function
1	C1-7	UEGO1 UN
2	C1-5	UEGO1 IA
3	---	+12V
4	C1-4	UEGO1 Heat
5	C1-8	UEGO1 VM
6	C1-6	UEGO1 IP

LAMBDA 2		
Deutsch Pin	Infinity Pin	Default Pin Function
1	C2-46	UEGO2 UN
2	C2-48	UEGO2 IA
3	---	+12V
4	C2-49	UEGO2 Heat
5	C2-45	UEGO2 VM
6	C2-47	UEGO2 IP

AEMNet		
Deutsch Pin	Infinity Pin	Default Pin Function
1	C1-31	CAN A-
2	C1-32	CAN A+
3	---	+12V
4	C1-30	Ground

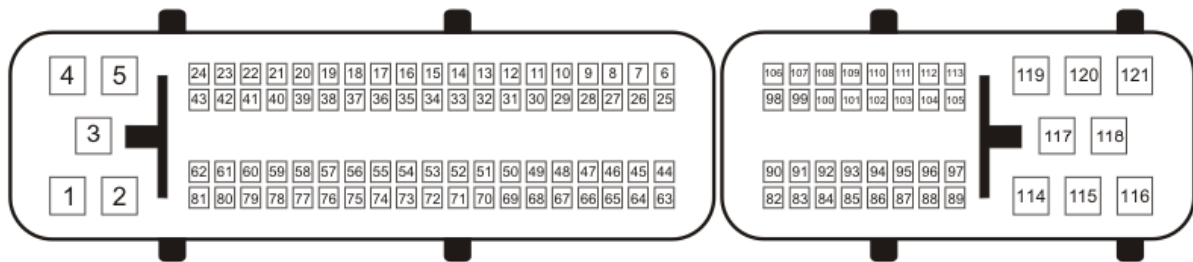
FLASH ENABLE		
Delphi Pin	Infinity Pin	Default Pin Function
1	C1-9	Harness Flash Enable
2	C1-10	Permanent Power

AEM Infinity Pin Numbering



AEM Infinity Connectors Viewed from Wire Side

2003-2006 350Z/G35 Pin Numbering



Viewed from Wire Side

12 MONTH LIMITED WARRANTY

Advanced Engine Management Inc. warrants to the consumer that all AEM High Performance products will be free from defects in material and workmanship for a period of twelve (12) months from date of the original purchase. Products that fail within this 12-month warranty period will be repaired or replaced at AEM's option, when determined by AEM that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of the AEM part. In no event shall this warranty exceed the original purchase price of the AEM part nor shall AEM be responsible for special, incidental or consequential damages or cost incurred due to the failure of this product. Warranty claims to AEM must be transportation prepaid and accompanied with 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 disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured by AEM. Warranty returns will only be accepted by AEM when accompanied by a valid Return Merchandise Authorization (RMA) number. Product must be received by AEM 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 can issue an RMA for any electronic product, it is first necessary for the installer or end user to contact the EMS 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 a RMA requested before the above process transpires.

AEM will not be responsible for electronic products that are installed incorrectly, installed in a non-approved application, misused, or tampered with.

Any AEM electronics product can be returned for repair if it is out of the warranty period. There is a minimum charge of \$50.00 for inspection and diagnosis of AEM electronic parts. Parts used in the repair of AEM electronic components will be extra. AEM will provide an estimate of repairs and receive written or electronic authorization before repairs are made to the product.