

# Instruction Manual



## Infinity 7 Layover Harness GM LS Engines 24x 30-3532



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

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### **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.**

**AEM Performance Electronics**  
2205 126<sup>th</sup> Street Unit A, Hawthorne, CA. 90250  
Phone: (310) 484-2322 Fax: (310) 484-0152  
<http://www.aemelectronics.com>  
Instruction Part Number: 10-3532

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## **Introduction**

This Infinity Layover Harness was designed for the GM LS Engine 24x (manual transmission). The harness includes all standard GM (or equivalent) connectors for direct plug-in fitment, and requires minimal wiring to complete the Power Distribution Center (PDC) connections. The Infinity ECU is sold separately, and includes base configuration files for the GM LS Engines 24x.

## **Overview**

This Instruction Manual describes the harness layout, and provides instructions for installation of the harness on a vehicle. All included connectors are listed in detail in the provided pinout. Also included are instructions for adding new circuits into the Infinity connectors if additional sensors or outputs are desired. Please read the entire Instruction Manual prior to beginning the installation.

## **Included Items**

### **Connectors**

- Infinity C1 and C2
- 8 injectors
- 2 coil pack connectors, Bank-1 and Bank-2
- Oil Pressure sensor
- Crank Position Sensor
- Cam Position Sensor
- Knock connector (supports 2 sensors)
- Alternator, 1-wire
- Cable Throttle Body
- Idle Air Control Valve, 4-wire stepper
- UEGO Wideband O2 sensors, Bank-1 and Bank-2
- Mass Air Flow sensor
- Intake Air Temperature sensor
- Engine Coolant Temperature sensor
- Manifold Absolute Pressure sensor
- Vehicle Speed Sensor
- Reverse Lockout Solenoid
- Cylinder head grounds, Bank-1 and Bank-2
- AEMnet

### **Power Distribution Center**

- Bussmann Relay/Fuse Box with flying leads

### **Relays/Fuses**

- Relay, ISO 280 Micro Relay 35A/12V (5 ea)
- Fuse, Mini ATM 30A (4 ea)
- Fuse, Mini ATM 20A (1 ea)
- Fuse, Mini ATM 10A (1 ea)



## **Power Distribution Center**

Included in the harness is a Bussmann Power Distribution Center (PDC), pre-populated with the required relays and fuses for correct operation of the harness. The PDC comes with a bundle of flying leads that need to be properly wired as part of the installation. Flying leads include switched ignition, battery power and ground, and switched power to Fuel Pump and Coolant Fans 1 & 2.



## **Connector Labels**

All connectors come labeled to assure proper installation and reduce setup time.



## **Downloadable Files**

The Quickstart Guide and Layover Harness Instruction Manual can be downloaded from [www.aemelectronics.com](http://www.aemelectronics.com). These documents are available for download here: [www.aemelectronics.com/engine-management-systems-9/infinity-8-10-12-stand-alone-programmable-ems-90/infinitytuner-software-and-instruction-downloads-92/](http://www.aemelectronics.com/engine-management-systems-9/infinity-8-10-12-stand-alone-programmable-ems-90/infinitytuner-software-and-instruction-downloads-92/)

Configuration files can be downloaded from [www.aeminfinity.com/](http://www.aeminfinity.com/). An experienced tuner must be available to configure and manipulate the data before driving can commence

### **Downloadable files for GM LS Engines 24x**

- GM\_LSX\_Supported\_Application\_v92-20130718RevA.pdf
- GM\_LSX\_24X\_Infinity\_Layover\_Harness\_RevA.pdf
- 7100-XXXX-62 INF-10 Universal v95
- 7101-XXXX-63 INF-8 Universal v95

## **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

## **Cable Throttle Body**

The GM LS Engines 24x layover harness is designed for use with a cable throttle body and 4-wire stepper IACV. However, the Infinity ECU does support up to 2 Drive-By-Wire throttle bodies. Additional wiring can be added into the Infinity connectors to support Drive-By-Wire throttle bodies if desired. Refer to the included pinout for proper pin numbers.

Drive-By-Wire throttle bodies incorporate idle control into the main throttle body, eliminating the need for a separate Idle Air Control Valve. If converting to Drive-By-Wire, move the IACV connector branch to a safe location and secure with an automotive grade tie wrap.

## **Wideband O2 Sensors**

AFR1 (UEGO Sensor Bank 1) and AFR2 (UEGO Sensor Bank 2) plugs are for connecting UEGO wideband Bosch LSU4.2 sensors (AEM 30-2001) models only. The UEGO extension harness (AEM 30-3600) mates with the layover harness to the sensor (1 required for each sensor used). Use of any other type of wideband sensor can damage the sensor and/or the Infinity ECU.



## **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-).

## **Installation Notes**

### **Wiring Conventions and EMI**

The GM LS Engines 24x layover harness comes pre-wired with all connectors, fuses, and relays needed to operate an engine. However, the PDC does require extension/termination of the flying leads to their appropriate devices, and additional sensors and other devices can be wired into the harness as needed for the specific application. The following guidelines should be adhered to while completing the required wiring.

A proper wiring job includes proper termination of the wire at the sensor. The wire terminal end must be moisture tight where it plugs into the sensor and it must have strong, electrically sound terminals. The preferred method of securing a wire to a terminal is to use a crimp terminal with NO solder. It is important to use the proper crimping tool for sound terminal construction. Plastic terminal plugs must have moisture tight seals. Inspect each plug to make sure the seals are in place. Di-electric grease can be added in the terminal slots to further aid in corrosion resistance.

If a splice into a wire must be made and no solder-less terminals are available, then you must properly solder the splice.

Noise can be a serious problem and can cause intermittent misfiring of the engine. Every precaution should be taken to prevent interference to the ECU's operation. Resistive plug leads are REQUIRED. The GM LS Engines 24X Layover Harness comes with shielded cables for the cam and crank position sensors. These wires have shield grounds that are grounded at the Infinity ECU plug. They are NOT grounded at the sensor end of the cable. Attempting to ground both ends of the cable will cause a condition called ground looping and will remove any noise protection the cable has.

To eliminate or reduce the chance of EMI, wires that carry high current must run in twisted pairs. An example of this would be the power leads from a multiple spark ignition system. These ignition systems can carry up to 100 amps for a couple milliseconds at the time of discharge, which induces a strong magnetic field in close proximity of the wires.

The routing of the wire loom is critical to EFI system performance and safety. The following safety considerations should be made when installing the wire loom:

- Heat protection: the loom should be placed away from or insulated from sources of heat. The obvious item(s) that should be avoided are the exhaust manifolds, EGR delivery tubes, and turbochargers. If it is absolutely necessary to route a wire in close proximity to any of these items, then a suitable insulator must be used.
- Noise suppression: do not route wires near the HT leads. For coil-on-plug ignition systems this is not as critical.
- Moving component protection: route wires away from moving components such as fans, the blower belt, or the throttle linkage. Also, make sure the wires are not under any strain when the engine is at full deflection on the motor mounts.
- Never have the wires in exposed bundles throughout the engine compartment.

### **Determining ECU Location**

- It is recommended that the ECU be placed in an environment that does not expose it to temperatures above 85° Celsius (160F).
- In cases where the Infinity is to be used in place of the stock ECU, the location that the stock ECU occupied is suitable.
- On applications where the ECU is to be located in a different position than stock, the interior of the vehicle is best.
- The Infinity should be located in a place that reduces the length of extension wires from the PDC while maintaining an environmentally sound location.
- The ECU location must permit the PDC to be mounted in a serviceable location.

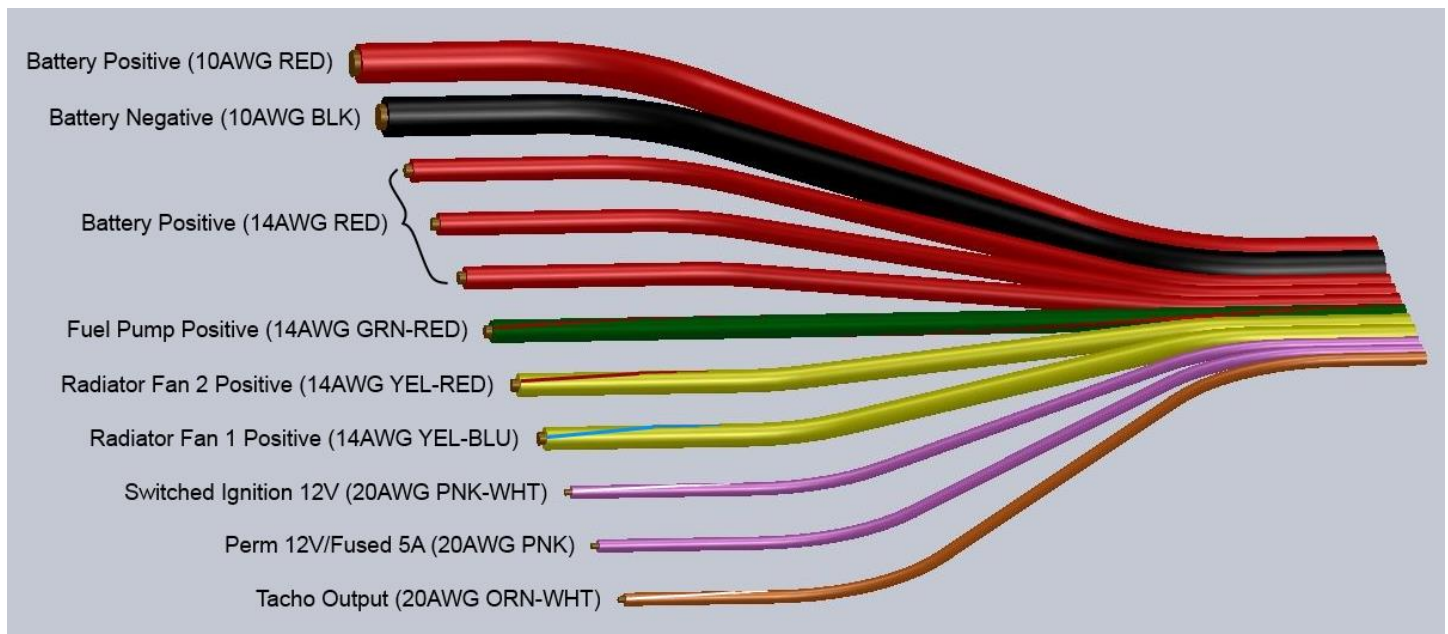
### **Power Distribution Center**

The PDC contains all of the Relays and Fuses for the entire harness, and should be mounted in a location which permits serviceability. Ideally the PDC should be located in the passenger compartment, or if necessary within the engine compartment as far away from heat sources as can be achieved.

The PDC contains the flying lead bundle which must be wired to the battery, fuel pump and radiator fan(s), and switched ignition. Routing of this flying lead bundle should also be taken into account when determining the mounting location of the PDC.

## Required Wiring

The GM LS Engines 24x Layover Harness comes with a flying lead bundle wired into the PDC. Each of the flying leads needs to be wired to an appropriate device, or sealed and tied wrapped if not used.



### Power and Ground

- The Infinity must have an electrically secure ground connection, which means that the battery negative must be properly grounded to the battery AND the cylinder head grounds must be properly grounded to the engine. The ground wires must have perfect electrical conductivity, which means that there must not be any paint or rust under the wire terminals.
- The Battery Negative (10AWG BLK) and Battery Positive (10AWG RED) wires must be extended long enough to reach the battery without having excess length. A 10AWG or larger gauge wires must be used to make the extensions.
- The 3 Battery Positive (14AWG RED) wires supply power to 3 relays:
  1. FPump
  2. RadFan1
  3. RadFan2

Each 14AWG wire can be extended with a 14AWG or larger gauge wire and connected directly to the battery positive. Alternatively, the 3 wires can be spliced together with a large enough gauge wire to support the amperage load of all three devices combined. The amperage load of your Radiator Fans and Fuel Pump is unique, and the wire gauge selected for your splice must be calculated correctly. Large voltage drops, burned wire insulation, and fire can occur from using too small of a gauge wire. Reference an American Wire Gauge table for more details on amperage ratings.

- To prevent rust build up, we recommend applying a protective layer of dielectric grease, such as Standard Ignition SL-4, to the bare metal surface.

### Fuel Pump

Run this wire to the fuel pump positive terminal. This wire provides fused/switched power to the fuel pump. A separate ground wire needs to connect the fuel pump negative terminal to chassis/battery ground.

### Radiator Fan 1 Positive

Run this wire to the Radiator Fan 1 positive terminal. This wire provides fused/switched power to the radiator fan. A separate ground wire needs to connect the radiator fan negative terminal to chassis/battery ground.

### Radiator Fan 2 Positive

Run this wire to the Radiator Fan 2 positive terminal. This wire provides fused/switched power to the radiator fan. A separate ground wire needs to connect the radiator fan negative terminal to chassis/battery ground.



### Switched Ignition 12V

The Switched Ignition flying lead (PNK-WHT) must be connected to the output on the ignition switch that supplies 12V when the switch is in the Start and Run position. The ignition switch output should be isolated, meaning that it is dedicated to the PNK-WHT wire, and should NOT supply switched ignition power to any other device.

### Perm 12V

The Perm 12V/Fused 5A PNK flying lead can be used to power the ignition switch if the switch does not already have a 12V source wired to it.

### Tacho Output

The Tacho Output (20AWG ORN-WHT) transmits a 0-12V pulse signal. The Tacho Output can be configured in the Infinity Tuner Wizard to transmit the desired pulses per engine revolution in order to match the installed tachometer.

## INFINITY CONNECTORS

The AEM Infinity EMS uses the MX123 Sealed Connection System from Molex. Refer to the **10-7100 for EMS 30-7100 Infinity Quick Start Guide** for details on connector assembly and handling.

AEM strongly recommends that users become familiar with the proper tools and procedures before attempting any modifications. The entire user manual can be downloaded direct from Molex at:

[http://www.molex.com/mx\\_upload/family/MX123UserManual.pdf](http://www.molex.com/mx_upload/family/MX123UserManual.pdf)



## GM LS Engines 24x Pinout

C1	Infinity Connector C1					73 Way F Receptacle 0.64 2.8 Series Sealed (GY)						
Pin	Wire Color	Gauge	Destination					Description				
			1	2	3	4	5					
C1-2	GRN	20	C23-B	---	---	---	---	Reverse Lockout Lowside Driver				
C1-4	WHT	18	C26-4	---	---	---	---	Deutsch DTM04-6P UEGO B1-HEAT				
C1-5	GRN	20	C26-2	---	---	---	---	Deutsch DTM04-6P UEGO B1-IA				
C1-6	RED	20	C26-6	---	---	---	---	Deutsch DTM04-6P UEGO B1-IP				
C1-7	BLK	20	C26-1	---	---	---	---	Deutsch DTM04-6P UEGO B1-UN				
C1-8	ORN	20	C26-5	---	---	---	---	Deutsch DTM04-6P UEGO B1-VM				
C1-10	PNK/RED	20	P1-7A	---	---	---	---	12V Perm Power				
C1-11	DK GRN/WHT	20	C4-C	---	---	---	---	Coil 4				
C1-12	LT BLU	20	C3-F	---	---	---	---	Coil 3				
C1-13	RED/WHT	20	C4-B	---	---	---	---	Coil 2				
C1-14	PPL	20	C3-G	---	---	---	---	Coil 1				
C1-15	LT BLU/WHT	20	C4-F	---	---	---	---	Coil 6				
C1-16	DK GRN	20	C3-C	---	---	---	---	Coil 5				
C1-17	VIO	20	P1-5D	---	---	---	---	Radiator Fan 1 Relay Control Lowside				
C1-18	VIO/BLK	20	P1-7D	---	---	---	---	Radiator Fan 2 Relay Control Lowside				
C1-19	YEL/BLK	20	C17-B	---	---	---	---	Crank Position Sensor Ground				
C1-20	PNK/BLK	20	C18-B	---	---	---	---	Cam Position Sensor Ground				
C1-21	DK BLU/BLK	20	C17-A	---	---	---	---	Crank Position Sensor Signal				
C1-22	BRN/WHT	20	C18-A	---	---	---	---	Cam Position Sensor Signal				
C1-24	YEL	20	C14-A	---	---	---	---	Mass Air Flow Sensor Signal				
C1-27	DK BLU	20	C20-A	---	---	---	---	Knock Sensor Signal 1				
C1-28	LT BLU	20	C20-B	---	---	---	---	Knock Sensor Signal 2				
C1-29	YEL/WHT	20, 20	P1-1D	P1-3D	---	---	---	EFI-1 Relay/EFI-2 Relay Control Lowside				
C1-30	BRN	20	C3-E	---	---	---	---	Coil Signal Ground (Bank 1)				
C1-31	GRN	22	C28-2	---	---	---	---	CAN Low (twisted pair)				
C1-32	WHT	22	C28-1	---	---	---	---	CAN High (twisted pair)				
C1-34	VIO/WHT	20	P1-9D	---	---	---	---	Fuel Pump Relay Control Lowside				
C1-35	DK BLU	20	C16-C	---	---	---	---	Throttle Position Sensor Signal				
C1-36	LT GRN	20	C13-B	---	---	---	---	Manifold Absolute Pressure Signal				
C1-41	GRY	20	C17-C	---	---	---	---	Crank Position Sensor +5V Supply				
C1-42	GRY	20	C18-C	---	---	---	---	Cam Position Sensor +5V Supply				
C1-44	RED	20	C21-B	---	---	---	---	12V High Side Driver -> 470Ω -> Alternator				
C1-55	MESH	---	C17-M	C18-M	---	---	---	Ground for Cam/Crank wire shieldings (drains)				
C1-56	YEL/BLK	20	C10-B	---	---	---	---	Injector 6 Control Lowside				
C1-57	BLK/WHT	20	C9-B	---	---	---	---	Injector 5 Control Lowside				
C1-58	LT BLU/BLK	20	C8-B	---	---	---	---	Injector 4 Control Lowside				
C1-59	PNK/BLK	20	C7-B	---	---	---	---	Injector 3 Control Lowside				
C1-60	BLK	20	C28-4	---	---	---	---	AEMnet Ground				
C1-61	PNK/YEL	20	SP-4	---	---	---	---	ECU 12V from EFI-1				
C1-62	LT GRN/BLK	20	C6-B	---	---	---	---	Injector 2 Control Lowside				
C1-63	BLK	20	C5-B	---	---	---	---	Injector 1 Control Lowside				
C1-64	PNK/YEL	20	SP-4	---	---	---	---	ECU 12V from EFI-1				
C1-65	PNK/WHT	20	1' flying lead for ign switch					12V Switched Ignition				
C1-66	YEL	20	C19-B	---	---	---	---	Engine Coolant Temperature Sensor Signal				
C1-67	TAN	20	C24-B	---	---	---	---	Intake Air Temperature Sensor Signal				
C1-69	LT GRN/WHT	20	C15-B	---	---	---	---	IAC Stepper Motor Coil B High				
C1-70	LT BLU/WHT	20	C15-D	---	---	---	---	IAC Stepper Motor Coil A High				
C1-71	LT GRN/BLK	20	C15-A	---	---	---	---	IAC Stepper Motor Coil B Low				
C1-72	LT BLU/BLK	20	C15-C	---	---	---	---	IAC Stepper Motor Coil A Low				
C1-73	BLK	14	SP-1	---	---	---	---	Battery Ground				



C2	Infinity Connector C2							56 Way F Receptacle 0.64 2.8 Series Sealed (BU)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
C2-3	BLK	18	SP-1	---	---	---	---	Battery Ground
C2-4	RED/BLK	20	C11-B	---	---	---	---	Injector 7 Control Lowside
C2-5	DK BLU/WHT	20	C12-B	---	---	---	---	Injector 8 Control Lowside
C2-8	BRN	20	C4-E	---	---	---	---	Coil Signal Ground (Bank 2)
C2-9	PNK/YEL	20	SP-4	---	---	---	---	ECU 12V from EFI-1
C2-13	---	---	---	---	---	---	---	Optional Drive-by-Wire (AccPedalPosition-2)
C2-14	---	---	---	---	---	---	---	Optional Drive-by-Wire (AccPedalPosition-1)
C2-18	GRN	20	C25-C	---	---	---	---	AEM Oil Pressure Sensor Signal
C2-21	---	---	---	---	---	---	---	Optional Drive-by-Wire (TPS1B)
C2-22	GRY	20	C13-C	---	---	---	---	MAP Sensor 5V Supply
C2-23	GRY	20	C16-A	---	---	---	---	TPS 5V Supply
C2-24	GRY	20	C25-B	---	---	---	---	Oil Pressure Sensor 5V Supply
C2-29	ORN/WHT	20	1' Flying Lead		---	---	---	Tacho Signal Out (1' flying lead)
C2-30	BLK, PPL	20	C25-A	C24-A	---	---	---	Sensor Ground
C2-31	TAN, BLK	20	C19-A	C16-B	---	---	---	Sensor Ground
C2-32	ORN/BLK	20	C13-A	---	---	---	---	MAP Sensor Ground
C2-34	---	---	---	---	---	---	---	Optional Drive-by-Wire (TPS2A)
C2-36	---	---	---	---	---	---	---	Optional Drive-by-Wire (TPS2B)
C2-39	BLK	18	SP-1	---	---	---	---	Battery Ground
C2-40	BLK	18	SP-1	---	---	---	---	Battery Ground
C2-45	ORN	20	C27-5	---	---	---	---	Deutsch DTM04-6P UEGO B2-VM
C2-46	BLK	20	C27-1	---	---	---	---	Deutsch DTM04-6P UEGO B2-UN
C2-47	RED	20	C27-6	---	---	---	---	Deutsch DTM04-6P UEGO B2-IP
C2-48	GRN	20	C27-2	---	---	---	---	Deutsch DTM04-6P UEGO B2-IA
C2-49	WHT	18	C27-4	---	---	---	---	Deutsch DTM04-6P UEGO B2-HEAT
C2-50	PNK/RED	---	P1-7A	---	---	---	---	12V Perm Power
C2-51	RED	20	C3-B	---	---	---	---	Coil 7
C2-52	PPL/WHT	20	C4-G	---	---	---	---	Coil 8

C3	Coil B1							7 Way F Metri-Pack 150 Series Sealed (Cream)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	BLK	16	SP-1	---	---	---	---	Power Ground
B	RED	20	C2-51	---	---	---	---	IC 7 Control
C	DK GRN	20	C1-16	---	---	---	---	IC 5 Control
D	---	---	---	---	---	---	---	Not Used
E	BRN	20	C1-30	---	---	---	---	Signal Ground
F	LT BLU	20	C1-12	---	---	---	---	IC 3 Control
G	PPL	20	C1-14	---	---	---	---	IC 1 Control
H	PNK	16	SP-5	---	---	---	---	Ignition Voltage

C4	Coil B2							7 Way F Metri-Pack 150 Series Sealed (Cream)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	BLK	16	SP-1	---	---	---	---	Power Ground
B	RED/WHT	20	C1-13	---	---	---	---	IC 2 Control
C	DK GRN/WHT	20	C1-11	---	---	---	---	IC 4 Control
D	---	---	---	---	---	---	---	Not Used
E	BRN	20	C2-8	---	---	---	---	Signal Ground
F	LT BLU/WHT	20	C1-15	---	---	---	---	IC 6 Control
G	PPL/WHT	20	C2-52	---	---	---	---	IC 8 Control
H	PNK	16	SP-6	---	---	---	---	Ignition Voltage

C5	Injector 1							2 Way F Metri-Pack 280.1 Series Pull to Seat (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	PNK	20	SP-2	---	---	---	---	Ignition Voltage
B	BLK	20	C1-63	---	---	---	---	Fuel Injector 1 Control

C6	Injector 2							2 Way F Metri-Pack 280.1 Series Pull to Seat (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	PNK	20	SP-3	---	---	---	---	Ignition Voltage
B	LT GRN/BLK	20	C1-62	---	---	---	---	Fuel Injector 2 Control

C7	Injector 3						2 Way F Metri-Pack 280.1 Series Pull to Seat (BLK)	
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	PNK	20	SP-2	---	---	---	---	Ignition Voltage
B	PNK/BLK	20	C1-59	---	---	---	---	Fuel Injector 3 Control

C8	Injector 4							2 Way F Metri-Pack 280.1 Series Pull to Seat (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	PNK	20	SP-3	---	---	---	---	Ignition Voltage
B	LT BLU/BLK	20	C1-58	---	---	---	---	Fuel Injector 4 Control

C9	Injector 5							2 Way F Metri-Pack 280.1 Series Pull to Seat (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	PNK	20	SP-2	---	---	---	---	Ignition Voltage
B	BLK/WHT	20	C1-57	---	---	---	---	Fuel Injector 5 Control

C10	Injector 6							2 Way F Metri-Pack 280.1 Series Pull to Seat (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	PNK	20	SP-3	---	---	---	---	Ignition Voltage
B	YEL/BLK	20	C1-56	---	---	---	---	Fuel Injector 6 Control

C11	Injector 7							2 Way F Metri-Pack 280.1 Series Pull to Seat (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	PNK	20	SP-2	---	---	---	---	Ignition Voltage
B	RED/BLK	20	C2-4	---	---	---	---	Fuel Injector 7 Control

C12	Injector 8							2 Way F Metri-Pack 280.1 Series Pull to Seat (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	PNK	20	SP-3	---	---	---	---	Ignition Voltage
B	DK BLU/WHT	20	C2-5	---	---	---	---	Fuel Injector 8 Control

C13	MAP Sensor						3 Way F Metri-Pack 150 Series (GRY)	
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	ORN/BLK	20	C2-32	---	---	---	---	Sensor Ground
B	LT GRN	20	C1-36	---	---	---	---	MAP Sensor Signal
C	GRY	20	C2-22	---	---	---	---	5-Volt Reference

C14	MAF Sensor						3 Way F Metri-Pack 150 Series (BLK)	
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	YEL	20	C1-24	---	---	---	---	MAF Sensor Signal
B	BLK	20	SP-3	---	---	---	---	Ground
C	PNK	20	SP-7	---	---	---	---	Ignition Voltage

C15	Idle Air Control Motor							4 Way F Metri-Pack 150.2 Series Pull to Seat
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	LT GRN/BLK	20	C1-71	---	---	---	---	IAC Stepper Motor Coil B LOW
B	LT GRN/WHT	20	C1-69	---	---	---	---	IAC Stepper Motor Coil B HIGH
C	LT BLU/BLK	20	C1-72	---	---	---	---	IAC Stepper Motor Coil A LOW
D	LT BLU/WHT	20	C1-70	---	---	---	---	IAC Stepper Motor Coil A HIGH

C16	Throttle Position Sensor							3 Way F Metri-Pack 150 Series Pull to Seat (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	GRY	20	C2-23	---	---	---	---	5-Volt Reference
B	BLK	20	C2-31	---	---	---	---	Sensor Ground
C	DK BLU	20	C1-35	---	---	---	---	TPS Sensor Signal

C17	Crank Position Sensor							3 Way F Metri-Pack 150 Series (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	DK BLU/BLK	20	C1-21	---	---	---	---	CKP Sensor Signal
B	YEL/BLK	20	C1-19	---	---	---	---	Sensor Ground
C	GRY	20	C1-41	---	---	---	---	5-Volt Reference
M	Mesh	---	C1-55	---	---	---	---	Shielding Drain

C18	Cam Position Sensor							3 Way F Metri-Pack 150 Series (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	BRN/WHT	20	C1-22	---	---	---	---	CMP Sensor Signal
B	PNK/BLK	20	C1-20	---	---	---	---	Sensor Ground
C	GRY	20	C1-42	---	---	---	---	5-Volt Reference
M	Mesh	---	C1-55	---	---	---	---	Shielding Drain

C19	Engine Coolant Temp Sensor							2 Way F Metri-Pack 150.2 Series Sealed P2S (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	TAN	20	C2-31	---	---	---	---	Sensor Ground
B	YEL	20	C1-66	---	---	---	---	ECT Sensor Signal

C20	Knock Sensors							2 Way F Metri-Pack 150 Series Sealed (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	DK BLU	20	C1-27	---	---	---	---	Knock Sensor 1 Signal
B	LT BLU	20	C1-28	---	---	---	---	Knock Sensor 2 Signal

C21	Alternator							4 Way F Metri-Pack 150 Series Sealed (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	Not Used	---	---	---	---	---	---	
B	RED	20	C1-44	---	---	---	---	12V High Side Driver -> 470Ω -> Alternator
C	Not Used	---	---	---	---	---	---	
D	Not Used	---	---	---	---	---	---	

C22	Vehicle Speed Sensor							2 Way F Metri-Pack 150.2 Series Pull to Seat (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	GRY/BLK	20	C2-26	---	---	---	---	Vehicle Speed Signal LOW
B	PPL/WHT	20	C2-25	---	---	---	---	Vehicle Speed Signal HIGH

C23	Reverse Lockout Solenoid							2 Way F Metri-Pack 150 Series Sealed (WHT)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	PNK	20	P1-10A	---	---	---	---	Ignition Voltage
B	GRN	20	C1-2	---	---	---	---	Reverse Lockout Signal (lowside driver)

C24	Intake Air Temp Sensor							2 Way F Metri-Pack 150.2 Series Pull to Seat (GRY)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	PPL	20	C2-30	---	---	---	---	Sensor Ground
B	TAN	20	C1-67	---	---	---	---	IAT Sensor Signal

C25	AEM Oil Pressure Sensor							3 Way F Metri-Pack 150 Series (BLK)
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
A	BLK	20	C2-30	---	---	---	---	Sensor Ground
B	GRY	20	C2-24	---	---	---	---	5V Reference
C	GRN	20	C2-18	---	---	---	---	Sensor Signal

C26	UEGO Sensor Bank 1							Deutsch DTM04-6P
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	BLK	20	C1-7	---	---	---	---	UEGO UN 1
2	GRN	20	C1-5	---	---	---	---	UEGO IA 1
3	BRN	18	SP-5	---	---	---	---	UEGO +12V 1
4	WHT	18	C1-4	---	---	---	---	UEGO HEAT 1
5	ORN	20	C1-8	---	---	---	---	UEGO VM 1
6	RED	20	C1-6	---	---	---	---	UEGO IP 1

C27	UEGO Sensor Bank 2							Deutsch DTM04-6P
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	BLK	20	C2-46	---	---	---	---	UEGO UN 2
2	GRN	20	C2-48	---	---	---	---	UEGO IA 2
3	BRN	18	SP-6	---	---	---	---	UEGO +12V 2
4	WHT	18	C2-49	---	---	---	---	UEGO HEAT 2
5	ORN	20	C2-45	---	---	---	---	UEGO VM 2
6	RED	20	C2-47	---	---	---	---	UEGO IP 2

C28	CAN							Deutsch DTM04-4P
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	WHT	20	C1-32	---	---	---	---	CAN_High (twisted pair)
2	GRN	20	C1-31	---	---	---	---	CAN_Low (twisted pair)
3	RED	20	SP-7	---	---	---	---	AEMnet 12V Supply
4	BLK	20	C1-60	---	---	---	---	AEMnet Ground

P1	Power Distribution Center							Busmann 15303-4-0-4
Pin	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1AA	RED	14	SP-8	---	---	---	---	EFI-1 30A Fuse
1A	RED	14	P1-1B	---	---	---	---	EFI-1 30A Fuse
1B	RED	14, 20	P1-A	P1-2B	---	---	---	EFI-1 Relay Pin 30
1C	---	---	---	---	---	---	---	---
1D	YEL/WHT	20	P1-3D	---	---	---	---	EFI-1 Relay Pin 86
2AA	RED	14	SP-8	---	---	---	---	EFI-2 30A Fuse
2A	RED	14	P1-3B	---	---	---	---	EFI-2 30A Fuse
2B	RED	20	P1-1B	---	---	---	---	EFI-1 Relay Pin 85
2C	---	---	---	---	---	---	---	---
2D	PNK	14,18,20	SP-5	P1-8AA	P1-6B	---	---	EFI-1 Relay Pin 87
3AA	RED	14	1' Flying Lead to Battery Pos (+)					RadFan 1 30A Fuse
3A	RED	14	P1-5B	---	---	---	---	RadFan 1 30A Fuse
3B	RED	14, 20	P1-2A	P1-4B	---	---	---	EFI-2 Relay Pin 30
3C	---	---	---	---	---	---	---	---
3D	YEL/WHT	20, 20	C1-29	P1-1D	---	---	---	EFI-2 Relay Pin 86
4AA	RED	14	1' Flying Lead to Battery Pos (+)					RadFan 2 30A Fuse
4A	RED	14	P1-7B	---	---	---	---	RadFan 2 30A Fuse
4B	RED	20	P1-3B	---	---	---	---	EFI-2 Relay Pin 85
4C	---	---	---	---	---	---	---	---
4D	PNK	14,20,20	SP-6	P1-9AA	P1-10AA	---	---	EFI-2 Relay Pin 87
5AA	RED	14	1' Flying Lead to Battery Pos (+)					Fuel Pump 20A Fuse
5A	RED	14	P1-9B	---	---	---	---	Fuel Pump 20A Fuse
5B	RED	14	P1-3A	---	---	---	---	RadFan 1 Relay Pin 30
5C	---	---	---	---	---	---	---	---
5D	VIO	20	C1-17	---	---	---	---	RadFan 1 Relay Pin 86
6AA	RED	20	SP-8	---	---	---	---	Switched Ignition 5A Fuse
6A	PNK	20	1' Flying Lead to ignition switch					Switched Ignition 5A Fuse
6B	PNK	20, 20	P1-2D	P1-8B	---	---	---	RadFan 1 Relay Pin 85
6C	---	---	---	---	---	---	---	---
6D	YEL/BLU	14	1' Flying Lead		---	---	---	RadFan 1 Relay Pin 87
7AA	RED	20	SP-8	---	---	---	---	Perm Battery Power 5A Fuse
7A	PNK/RED	20, 20	C1-10	C2-50	---	---	---	Perm Battery Power 5A Fuse
7B	RED	14	P1-4A	---	---	---	---	RadFan 2 Relay Pin 30
7C	---	---	---	---	---	---	---	---
7D	VIO/BLK	20	C1-18	---	---	---	---	RadFan 2 Relay Pin 86
8AA	PNK	18	P1-2D	---	---	---	---	ECU 12V Supply 10A Fuse
8A	PNK/YEL	18	SP-4	---	---	---	---	ECU 12V Supply 10A Fuse
8B	PNK	20, 20	P1-6B	P1-10B	---	---	---	RadFan 2 Relay Pin 85
8C	---	---	---	---	---	---	---	---
8D	YEL/RED	14	1' Flying Lead		---	---	---	RadFan 2 Relay Pin 87
9AA	PNK	20	P1-4D	---	---	---	---	MAF / AEMnet 12V Power 5A Fuse
9A	PNK	20	SP-7	---	---	---	---	MAF / AEMnet 12V Power 5A Fuse
9B	RED	14	P1-5A	---	---	---	---	Fuel Pump Relay Pin 30
9C	---	---	---	---	---	---	---	---
9D	VIO/WHT	20	C1-34	---	---	---	---	Fuel Pump Relay Pin 86
10AA	PNK	20	P1-4D	---	---	---	---	Reverse Lockout 5A Fuse
10A	PNK	20	C23-A	---	---	---	---	Reverse Lockout 5A Fuse
10B	PNK	20	P1-8B	---	---	---	---	Fuel Pump Relay Pin 85
10C	---	---	---	---	---	---	---	---
10D	GRN/RED	14	1' Flying Lead		---	---	---	Fuel Pump Relay Pin 87

SP-1	Battery Ground Splice							
	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	BLK	10	1' flying lead, route via P1 then to splice					Battery Neg (-) flying lead
2	BLK	16	C3-A	---	---	---	---	Coil B1 Power Ground
3	BLK	16	C4-A	---	---	---	---	Coil B2 Power Ground
4	BLK	20	C14-B	---	---	---	---	MAF Ground
5	BLK	14	C1-73	---	---	---	---	ECU Ground
6	BLK	18	C2-3	---	---	---	---	ECU Ground
7	BLK	18	C2-39	---	---	---	---	ECU Ground
8	BLK	18	C2-40	---	---	---	---	ECU Ground
9	BLK	12	Head B1	---	---	---	---	Cylinder Head B1 Ground
10	BLK	12	Head B2	---	---	---	---	Cylinder Head B2 Ground

SP-2	Injector B1 +12V Splice							
	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	PNK	16	SP-5	---	---	---	---	Splice SP-5
2	PNK	20	C5-A	---	---	---	---	Injector 1 +12V
3	PNK	20	C7-A	---	---	---	---	Injector 3 +12V
4	PNK	20	C9-A	---	---	---	---	Injector 5 +12V
5	PNK	20	C11-A	---	---	---	---	Injector 7 +12V

SP-3	Injector B2 +12V Splice							
	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	PNK	16	SP-6	---	---	---	---	Splice SP-6
2	PNK	20	C6-A	---	---	---	---	Injector 2 +12V
3	PNK	20	C8-A	---	---	---	---	Injector 4 +12V
4	PNK	20	C10-A	---	---	---	---	Injector 6 +12V
5	PNK	20	C12-A	---	---	---	---	Injector 8 +12V

SP-4	ECU +12V EFI Splice							
	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	PNK/YEL	18	P1-8A	---	---	---	---	ECU 12V Supply 10A Fuse
2	PNK/YEL	20	C1-61	---	---	---	---	ECU 12V from EFI-1
3	PNK/YEL	20	C1-64	---	---	---	---	ECU 12V from EFI-1
4	PNK/YEL	20	C2-9	---	---	---	---	ECU 12V from EFI-1

SP-5	EFI-1 +12V Out Splice							
	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	PNK	14	P1-2D	---	---	---	---	EFI-1 Relay Pin 87
2	PNK	16	SP-2	---	---	---	---	Splice SP-2
3	BRN	18	C26-3	---	---	---	---	UEGO Bank 1 +12V
4	PNK	16	C3-H	---	---	---	---	Coil Bank 1 +12V

SP-6	EFI-2 +12V Out Splice							
	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	PNK	14	P1-4D	---	---	---	---	EFI-2 Relay Pin 87
2	PNK	16	SP-3	---	---	---	---	Splice SP-3
3	BRN	18	C27-3	---	---	---	---	UEGO Bank 2 +12V
4	PNK	16	C4-H	---	---	---	---	Coil Bank 1 +12V

SP-7	MAF/AEMnet +12V Splice							
	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	PNK	20	P1-9A	---	---	---	---	MAF/AEMnet 5A Fuse
2	PNK	20	C14-C	---	---	---	---	MAF +12V
3	RED	20	C28-3	---	---	---	---	AEMnet +12V

SP-8	Battery Power Splice							
	Wire Color	Gauge	Destination					Description
			1	2	3	4	5	
1	RED	10	1' flying lead from splice					Battery Pos (+) flying lead
2	RED	14	1AA	---	---	---	---	EFI-1 30A Fuse
3	RED	14	2AA	---	---	---	---	EFI-2 30A Fuse
4	RED	20	6AA	---	---	---	---	Switched Ignition 5A Fuse
5	RED	20	7AA	---	---	---	---	Perm Battery Power 5A Fuse



# Infinity ECU Pinout

Infinity - 10, P/N 30-7100/01

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	Hrdwr Ref.	Hardware Specification	Notes
C1-1	LowsideSwitch_4	Lowside switch, 4A max, NO internal flyback diode.	See Setup Wizard Pages "User GPOs" for activation criteria and "LowSide Assignment Tables" for output assignment
C1-2	LowsideSwitch_5	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page "LowSide Assignment Tables" for output assignment and 2D table "LS5_Duty [%]" for activation.
C1-3	LowsideSwitch_6	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Setup Wizard Page "LowSide Assignment Tables" for output assignment and 2D table "LS6_Duty [%]" for activation.
C1-4	UEGO 1 Heat	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 power by a fused/switched 12V supply.
C1-5	UEGO 1 IA		Trim Current signal. Connect to pin 2 of Bosch UEGO sensor
C1-6	UEGO 1 IP		Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor
C1-7	UEGO 1 UN		Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor
C1-8	UEGO 1 VM		Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
C1-9	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	Dedicated power management CPU	Full time battery power. MUST be powered before the ignition switch input is triggered (See C1-65).
C1-11	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	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	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	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	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	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	LowsideSwitch_2	Lowside switch, 4A max, NO internal flyback diode.	See Setup Wizard Pages "User GPOs" for activation criteria and "LowSide Assignment Tables" for output assignment
C1-18	LowsideSwitch_3	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Wizard page "LowSide Assignment Tables" for output assignment. MIL Activates when any of the following flags are true: ErrorAirTemp, ErrorBaro, ErrorCoolantTemp, ErrorEBP, ErrorFuelPressure, UEGO_0_Diag_error, UEGO_1_Diag_error, ErrorMAFAnalog, ErrorMAFDigital, ErrorMAP, ErrorOilPressure, ErrorThrottle.

C1-19	AGND_1	Dedicated analog ground	Analog 0-5V sensor ground
C1-20	AGND_1	Dedicated analog ground	Analog 0-5V sensor ground
C1-21	Crankshaft Position Sensor Hall	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.
C1-22	Camshaft Position Sensor 1 Hall	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.
C1-23	Digital_In_2	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Cam/Crank for options.
C1-24	Digital_In_3	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Turbo Speed for calibration constant. TurboSpeed [RPM] = Turbo [Hz] * Turbo Speed Calibration.
C1-25	Digital_In_4	10K pullup to 12V. Will work with ground or floating switches.	See Setup Wizard page Vehicle Speed for calibration constant.
C1-26	Digital_In_5	10K pullup to 12V. Will work with ground or floating switches.	See channel FlexDigitalIn [Hz] for raw frequency input data.
C1-27	Knock Sensor 1	Dedicated knock signal processor	See Setup Wizard page Knock Setup for options.
C1-28	Knock Sensor 2	Dedicated knock signal processor	See Setup Wizard page Knock Setup for options.
C1-29	+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	Power Ground	Power Ground	Connect directly to battery ground
C1-31	CANL_Aout	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-32	CANH_Aout	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-33	LowsideSwitch_1	Lowside switch, 4A 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	Lowside Fuel Pump drive	Lowside switch, 4A max, NO internal flyback diode.	Switched ground. Will prime for 2 seconds at key on and activate if RPM > 0.
C1-35	Analog_In_7	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 Throttle Range page for automatic min/max calibration. Monitor the Throttle [%] channel. Also DB1_TPSA [%] for DBW applications.
C1-36	Analog_In_8	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	Analog_In_9	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.

C1-38	Analog_In_10	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	Analog_In_11	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 1D lookup table 'ShiftSwitch' for setup. Also assignable to multiple functions. See Setup Wizard for details.
C1-40	Analog_In_12	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 1D lookup table 'ModeSwitch' for input state. A multi-position rotary switch such as AEM P/N 30-2056 is recommended. Also assignable to multiple functions. See Setup Wizard for details.
C1-41	+5V_Out_1	Regulated, fused +5V supply for sensor power	Analog sensor power
C1-42	+5V_Out_1	Regulated, fused +5V supply for sensor power	Analog sensor power
C1-43	HighsideSwitch_1	0.7A max, High Side Solid State Relay	See Setup Wizard page 'HighSide Assignment Tables' for configuration options. See 2D lookup table 'HS1_Table' for activation settings.
C1-44	HighsideSwitch_0	0.7A max, High Side Solid State Relay	See Setup Wizard page 'HighSide Assignment Tables' for configuration options. See 2D lookup table 'HS0_Table' for activation settings. See Setup Wizard page 'VTEC' for default activation criteria.
C1-45	Crankshaft Position Sensor VR+	Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page Cam/Crank for options.
C1-46	Crankshaft Position Sensor VR-		See Setup Wizard page Cam/Crank for options.
C1-47	Camshaft Position Sensor 1 VR-	Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page Cam/Crank for options.
C1-48	Camshaft Position Sensor 1 VR+		See Setup Wizard page Cam/Crank for options.
C1-49	VR+_In_2	Differential Variable Reluctance Zero Cross Detection	See Non Driven Wheel Speed Calibration in the Setup Wizard Vehicle Speed page.
C1-50	VR-_In_2		
C1-51	VR-_In_3	Differential Variable Reluctance Zero Cross Detection	See Driven Wheel Speed Calibration in the Setup Wizard Vehicle Speed page.
C1-52	VR+_In_3		
C1-53	DBW1 Motor -	5.0A max Throttle Control Hbridge Drive	+12V to close
C1-54	DBW1 Motor +	5.0A max Throttle Control Hbridge Drive	+12V to open
C1-55	Power Ground	Power Ground	Connect directly to battery ground
C1-56	Injector 6	Saturated or peak and hold, 3A max continuous	Injector 6
C1-57	Injector 5	Saturated or peak and hold, 3A max continuous	Injector 5
C1-58	Injector 4	Saturated or peak and hold, 3A max continuous	Injector 4

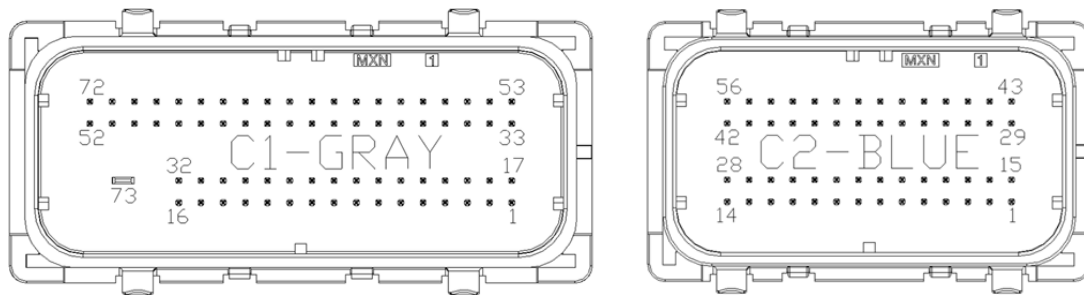
C1-59	Injector 3	Saturated or peak and hold, 3A max continuous	Injector 3
C1-60	Power Ground	Power Ground	Connect directly to battery ground
C1-61	+12V	12 volt power from relay	12 volt power from relay. Relay must be controlled by +12V Relay Control signal, pin C1-29 above.
C1-62	Injector 2	Saturated or peak and hold, 3A max continuous	Injector 2
C1-63	Injector 1	Saturated or peak and hold, 3A max continuous	Injector 1
C1-64	+12V	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	+12V_SW	10K pulldown	Full time battery power must be available at C1-10 before this input is triggered.
C1-66	Analog_In_Temp_1	12 bit A/D, 2.49K pullup to 5V	See "Coolant Temperature" Setup Wizard for selection.
C1-67	Analog_In_Temp_2	12 bit A/D, 2.49K pullup to 5V	See "Air Temperature" Setup Wizard for selection.
C1-68	Harness_Analog_In_Temp_3	12 bit A/D, 2.49K pullup to 5V	See 1D table OilTempCal table for calibration data and OilTemp [C] for channel data.
C1-69	Stepper_2A	Automotive, Programmable Stepper Driver, up to 28V and $\pm 1.4A$	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	Automotive, Programmable Stepper Driver, up to 28V and $\pm 1.4A$	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	Automotive, Programmable Stepper Driver, up to 28V and $\pm 1.4A$	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	Automotive, Programmable Stepper Driver, up to 28V and $\pm 1.4A$	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	Power Ground	Power Ground	Connect directly to battery ground
C2-1	DBW2 Motor +	5.0A max Throttle Control Hbridge Drive	+12V to open
C2-2	DBW2 Motor -	5.0A max Throttle Control Hbridge Drive	+12V to close
C2-3	Power Ground	Power Ground	Connect directly to battery ground
C2-4	Injector 7	Saturated or peak and hold, 3A max continuous	Injector 7
C2-5	Injector 8	Saturated or peak and hold, 3A max continuous	Injector 8
C2-6	Injector 9	Saturated or peak and hold, 3A max continuous	Injector 9
C2-7	Injector 10	Saturated or peak and hold, 3A max continuous	Injector 10
C2-8	Power Ground	Power Ground	Connect directly to battery ground
C2-9	+12V	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	Injector 11	Saturated or peak and hold, 3A max continuous	Not used
C2-11	Injector 12	Saturated or peak and hold, 3A max continuous	Not used

C2-12	Analog_In_17	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.
C2-13	Analog_In_18	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.
C2-14	Analog_In_19	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.
C2-15	Analog_In_Temp_4	12 bit A/D, 2.49K pullup to 5V	See ChargeOutTemp [C] table for calibration data and ChargeOutTemp [C] for channel data.
C2-16	Analog_In_Temp_5	12 bit A/D, 2.49K pullup to 5V	See AirboxTemp [C] table for calibration data and AirboxTemp [C] for channel data.
C2-17	Analog_In_Temp_6	12 bit A/D, 2.49K pullup to 5V	See FuelTemp [C] table for calibration data and FuelTemp [C] for channel data.
C2-18	Analog_In_13	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 Oil Pressure page for setup options. See OilPressure [psig] for channel data.
C2-19	Analog_In_14	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 TC_SlipTrgtTrim [MPH] 1-axis table. A multi-position rotary switch such as AEM P/N 30-2056 is recommended.
C2-20	Analog_In_15	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	Analog_In_16	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.
C2-22	+5V_Out_2	Regulated, fused +5V supply for sensor power	Analog sensor power
C2-23	+5V_Out_2	Regulated, fused +5V supply for sensor power	Analog sensor power
C2-24	+5V_Out_2	Regulated, fused +5V supply for sensor power	Analog sensor power
C2-25	VR+_In_5	Differential Variable Reluctance Zero Cross Detection	See Driven Wheel Speed Calibration in the Setup Wizard Vehicle Speed page.
C2-26	VR-_In_5		
C2-27	VR-_In_4	Differential Variable Reluctance Zero Cross Detection	See Non Driven Wheel Speed Calibration in the Setup Wizard Vehicle Speed page.
C2-28	VR+_In_4		
C2-29	LowsideSwitch_9	Lowside switch, 4A max with internal flyback diode, 2.2K 12V pullup. Inductive load should NOT have full time power.	See Setup Wizard page Tacho for configuration options.
C2-30	AGND_2	Dedicated analog ground	Analog 0-5V sensor ground

C2-31	AGND_2	Dedicated analog ground	Analog 0-5V sensor ground
C2-32	AGND_2	Dedicated analog ground	Analog 0-5V sensor ground
C2-33	Analog_In_20	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.
C2-34	Analog_In_21	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	Analog_In_22	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 USBLoggingRequestIn channel for input state. See Setup Wizard page USB Logging for configuration options.
C2-36	Analog_In_23	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	Digital_In_6	No pullup. Will work with TTL signals.	Input can be assigned to different pins. See Setup Wizard page Input Function Assignments for input mapping options.
C2-38	Digital_In_7	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 Function Assignments for input mapping options.
C2-39	Power Ground	Power Ground	Connect directly to battery ground
C2-40	Power Ground	Power Ground	Connect directly to battery ground
C2-41	CanH_Bout	Dedicated High Speed CAN Transceiver	Not used
C2-42	CanL_Bout	Dedicated High Speed CAN Transceiver	Not used
C2-43	LowsideSwitch_8	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	Activates if any of the following flags are true: OilPressProtectOut, LeanProtectOut, CoolantProtect. Output can be assigned to other functions. See Setup Wizard page LowSide Assignment Tables for additional options.
C2-44	LowsideSwitch_7	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.	See Spare GPO1 Basic Setup section of User GPIOs and PWM Setup Wizard page LowSide Assignment Tables for additional options.
C2-45	UEGO 2 VM	Bosch UEGO Controller	Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
C2-46	UEGO 2 UN		Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor
C2-47	UEGO 2 IP		Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor
C2-48	UEGO 2 IA		Trim Current signal. Connect to pin 2 of Bosch UEGO sensor
C2-49	UEGO 2 HEAT		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 power by a fused/switched 12V supply.
C2-50	+12V_R8C_CPU	Dedicated power management CPU	Optional full time battery power. MUST be powered before the ignition switch input is triggered (See C1-65).
C2-51	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	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	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	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 Fuel Pump switch	Highside switch, 0.7A max, Solid State Relay, NO internal flyback diode.	+12V High Side Drive. Will prime for 2 seconds at key on and activate if RPM > 0.
C2-56	Not used	Not used	Not used

### AEM Infinity Connectors 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.

**An AEM Warranty Claim Form Must Accompany All Warranty Claims. Products returned to AEM with no Return Goods Authorization and or No Warranty Claim Form may be rejected and returned to sender.**

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 Goods Authorization (RGA) number. Credit for defective products will be issued pending inspection. Product must be received by AEM within 30 days of the date RGA was issued.

**Please note that before we can issue an RGA for any product, it is first necessary for the installer or end user to contact our EMS tech line at (800) 423-0046 to discuss the problem. Most issues can be solved over the phone. Under no circumstances should a product be returned or RGA requested before the above process transpires.**

**AN AEM WARRANTY CLAIM FORM MUST ACCOMPANY ALL ELECTRONICS WARRANTY CLAIMS. AEM ELECTRONIC Products returned to AEM with no RGA and or No Warranty Claim Form may be rejected and returned to sender.**

**A copy of the AEM Warranty Claim Form can be e-mailed or faxed by contacting (310) 484-2322 and ask for Warranty/Claims Department.**

**Need additional help? Contact the AEM Performance Electronics tech department at 1-800-423-0046 or [tech@aempower.com](mailto:tech@aempower.com), or visit the AEM Performance Electronics forum at: <http://forum.aempower.com/forum/>**