



# Infinity-8/10&812 Mini Harness User Manual 30-3702/03

**THIS PRODUCT IS LEGAL IN CALIFORNIA FOR RACING VEHICLES ONLY  
AND SHOULD NEVER BE USED ON PUBLIC HIGHWAYS.**

**WARNING:**



**WARNING:**

This installation is not for the tuning novice! Use this system with **EXTREME** caution! 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. A list of AEM trained tuning shops is available at [www.aemelectronics.com/dealer\\_locator.php](http://www.aemelectronics.com/dealer_locator.php) or by calling 800-423-0046.

**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 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!

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## Introduction

Several universal wiring harness options are available for Infinity products. They range in complexity from simple plug and pin kits to complete engine harness assemblies that include power distribution centers. Custom wiring harness projects should only be undertaken by experienced harness builders. If in doubt, please contact AEM for recommendations.

### **30-3805 Universal V8 harness system for Infinity-8/10 systems**

The Infinity Universal V8 Harness system consists of a universal core harness and optional application specific extensions. It was designed with flexibility in mind. The harness system includes many features and it can be used in many different applications.

### **30-3807 Universal V8 harness system for Infinity-6/8h systems**

The Infinity Universal V8 Harness system consists of a universal core harness and optional application specific extensions. It was designed with flexibility in mind. The harness system includes many features and it can be used in many different applications.

### **30-3705 Universal Mini Harness for Infinity-6/8h systems**

This harness is intended to be used as a starting point by experienced harness builders. It saves time by including basic power distribution features that can be expanded to suit many application requirements. It allows the harness builder to populate the ECU connector with only the features needed by the application.

### **30-3702 Infinity-8/10/12 Mini-harness**

This harness is intended to be used as a starting point by experienced harness builders. It saves time by including basic power distribution features that can be expanded to suit many application requirements. It allows the harness builder to populate the ECU connector with only the features needed by the application. Includes 100 96" pre-terminated leads.

### **30-3703 Infinity-8/10/12 Mini-harness**

This harness is intended to be used as a starting point by experienced harness builders. It saves time by including basic power distribution features that can be expanded to suit many application requirements. It allows the harness builder to populate the ECU connector with only the features needed by the application.

### **30-3701 Infinity-8/10/12 Plug & Pin Kit**

Bare necessities to begin a custom wire harness design. Includes 73 and 56 pin Molex MX123 harness connectors, terminals and sealing plugs, main relay and relay socket.

### **30-3704 Infinity-6/8h Plug & Pin Kit**

Bare necessities to begin a custom wire harness design. Includes 80 pin Molex MX123 harness connector, terminals and sealing plugs, main relay and relay socket.

This manual is focused primarily on the universal V8 harness system components but it

can be used as a reference for any custom harness build based on the Infinity ECU.

***Please read the entire User Manual prior to beginning any installation.***

### **3702/3703 Kit Contents**

- Infinity-8/10/12 Mini-Harness
- 100 Molex MX64 terminals
- 30 Molex MX64 sealing plugs
- User Instructions
  
- 3702 kits include 100 96" pre-terminated leads for populating



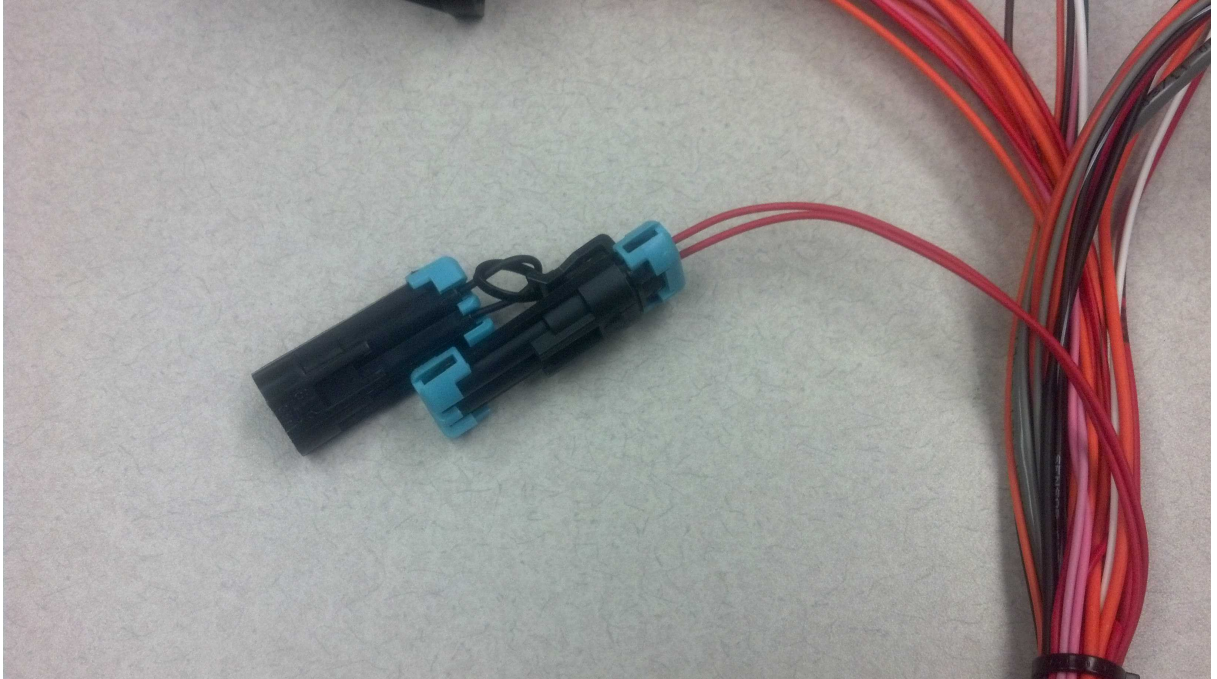
### **ECU Connectors**

The Infinity-6/8h/8/10 ECUs use the MX123 Sealed Connection System from Molex. AEM strongly recommends that users become familiar with the proper tools and procedures before attempting any modifications or additions to these connector housings. The entire Molex 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)

## 3703 and 3705 Connectors

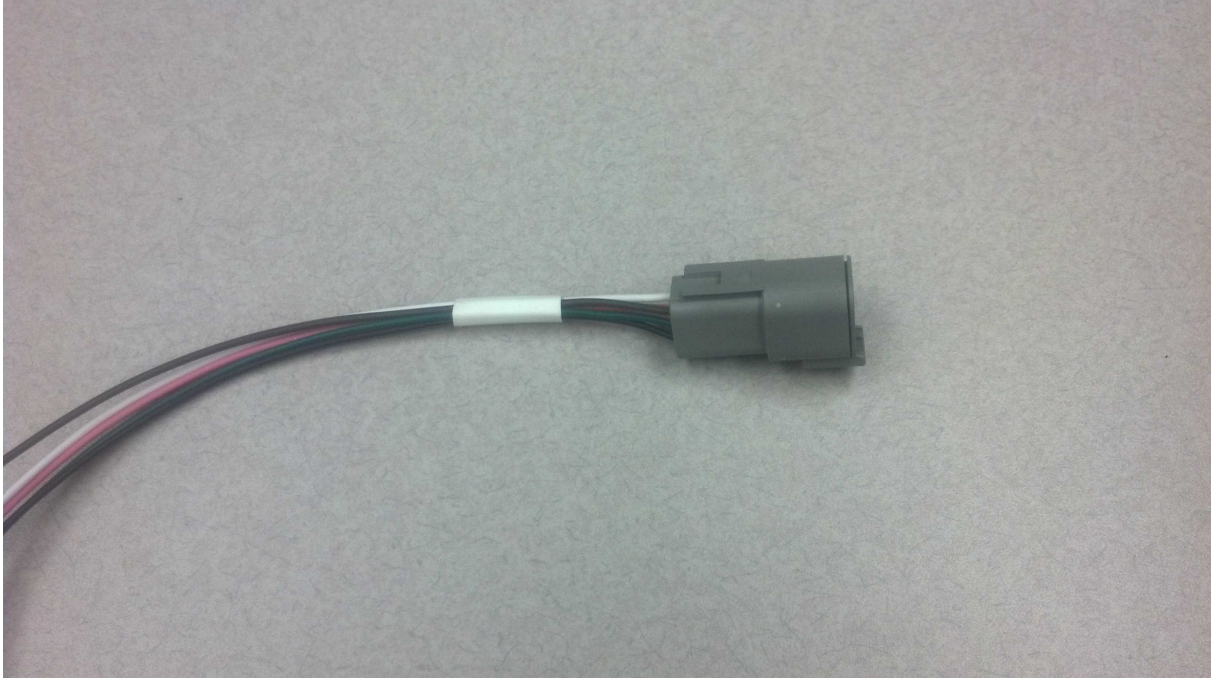
### Flash enable connector

Not usually needed. Used under certain conditions to force the ECU into flash programming mode.



**UEGO connector**

Connect to 30-3600 UEGO extension harness.





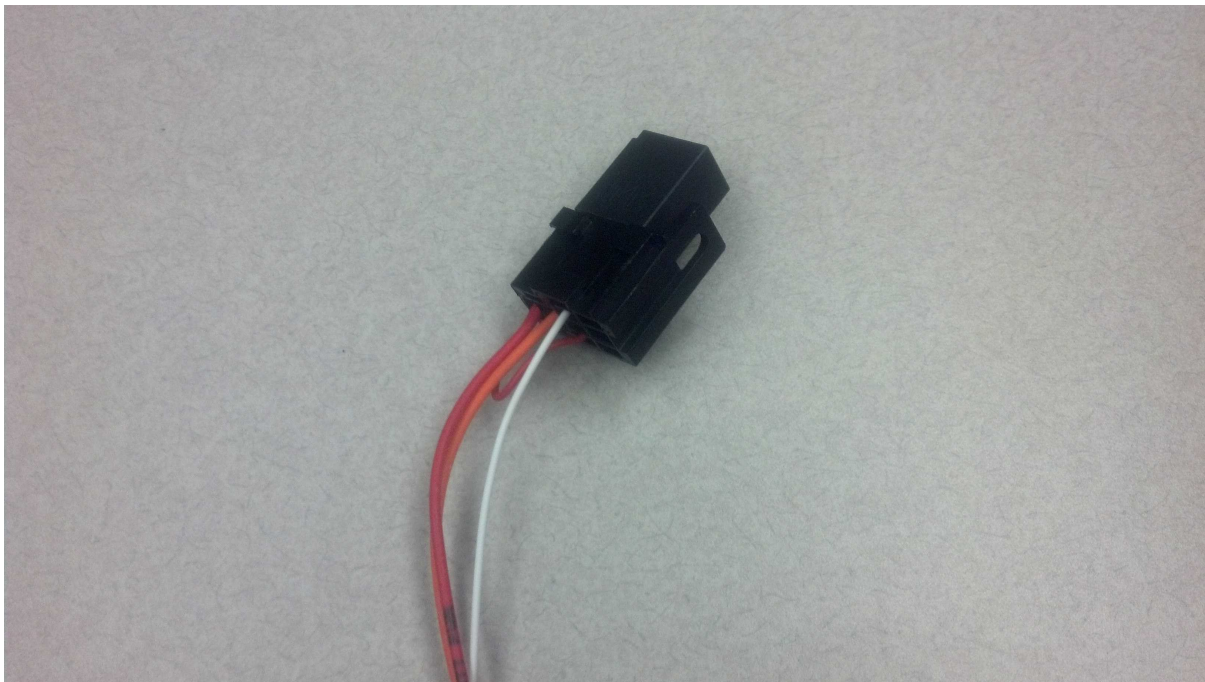
**AEMNet connector**

Connect to optional AEMNet enabled devices.



**EFI Main Relay**

Required for normal power sequencing function.



**Flying lead bundle**

Wires are ink stamped with descriptions as follows:

BATT GND	Connect directly to battery negative
BATT PWR	Connect directly to battery positive
Sensor GND	Connect to low reference (GND) of 5V analog sensors
SWT PWR	Ignition switch input.
5V REF	Connect to high reference (5V PWR) of 5V analog sensors
ACC PWR	Option for powering accessory relays
INJ PWR	Fused 12V power for injectors
IGN PWR	Fused 12V power for coils

**Completing the harness**

Use the supplied Molex MX64 terminals to add circuits and features as needed. Refer to the Infinity-6/8h pinout for available options. Refer to the example schematic included below for recommended wiring designs.



## Installation Notes

### Wiring Conventions and EMI

Some wire harness assemblies come pre-wired with all connectors, fuses, and relays needed to operate an engine. Harnesses that include a PDC generally 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.

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**

PDCs included in the harness assemblies generally include all relays and fuses necessary for proper function 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. Some PDCs contain flying lead bundles which must be wired to the battery, fuel pump and radiator fan(s), switched ignition and possibly other interfaces. Routing of this flying lead bundle should also be taken into account when determining the mounting location of the PDC.

## Infinity-8/10/12 ECU Pinout

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C1-1	LowsideSwitch_4_Out	Lowside switch, 4A max, NO internal flyback diode.  No pullup	Normally used as A/C Relay Control output.
C1-2	LowsideSwitch_5_Out	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.  No pullup	See Setup Wizard Page "LowSide Assignment Tables" for output assignment and 2D table "LS5_Duty [%]" for activation.
C1-3	LowsideSwitch_6_Out	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.  No pullup	See Setup Wizard Page "LowSide Assignment Tables" for output assignment and 2D table "LS6_Duty [%]" for activation.
C1-4	UEGO 1 Heat_Out	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_In		Trim Current signal. Connect to pin 2 of Bosch UEGO sensor
C1-6	UEGO 1 IP_In		Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor
C1-7	UEGO 1 UN_In		Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor
C1-8	UEGO 1 VM_In		Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
C1-9	Flash_Enable_In	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_In	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_Out	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_Out	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	Hrdwr Ref.	Hardware Specification	Notes
C1-13	Coil 2_Out	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_Out	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_Out	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_Out	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_Out	Lowside switch, 4A max, NO internal flyback diode.  No pullup	See Setup Wizard Pages "User GPOs" for activation criteria and "LowSide Assignment Tables" for output assignment
C1-18	LowsideSwitch_3_Out	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.  No pullup	Normally used as MIL output. 'See Wizard page "LowSide Assignment Tables" for output assignment.
C1-19	AGND_1_Out	Dedicated analog ground	Analog 0-5V sensor ground
C1-20	AGND_1_Out	Dedicated analog ground	Analog 0-5V sensor ground
C1-21	Crankshaft Position Sensor Hall_In	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_In	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.



Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
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_In	Dedicated knock signal processor	See Setup Wizard page Knock Setup for options.
C1-28	Knock Sensor 2_In	Dedicated knock signal processor	See Setup Wizard page Knock Setup for options.
C1-29	+12V_Relay_Control_Out	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_In	Power Ground	Connect directly to battery ground
C1-31	CANL_A_Out	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-32	CANH_A_Out	Dedicated High Speed CAN Transceiver	Recommend twisted pair (one twist per 2") with terminating resistor. Contact AEM for additional information.
C1-33	LowsideSwitch_1_Out	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.  No pullup	See Setup Wizard page Boost Control for options. Monitor BoostControl [%] channel for output state.
C1-34	LowsideSwitch_0_Out	Lowside switch, 4A max, NO internal flyback diode.  No pullup	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.
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.

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
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.
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.
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. Normally used as Shift Switch input.
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. Normally used as Mode Switch input.
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_Out	0.7A max, High Side Solid State Relay	See Setup Wizard page 'HighSide Assigment Tables' for configuration options.
C1-44	HighsideSwitch_0_Out	0.7A max, High Side Solid State Relay	See Setup Wizard page 'HighSide Assigment Tables' for configuration options.
C1-45	Crankshaft Position Sensor VR+_In	Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page Cam/Crank for options.
C1-46	Crankshaft Position Sensor VR-_In		See Setup Wizard page Cam/Crank for options.
C1-47	Camshaft Position Sensor 1 VR-_In	Differential Variable Reluctance Zero Cross Detection	See Setup Wizard page Cam/Crank for options.
C1-48	Camshaft Position Sensor 1 VR+_In		See Setup Wizard page Cam/Crank for options.

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
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 -_Out	5.0A max Throttle Control Hbridge Drive	+12V to close.
C1-54	DBW1 Motor +_Out	5.0A max Throttle Control Hbridge Drive	+12V to open.
C1-55	Power Ground_In	Power Ground	Connect directly to battery ground
C1-56	Injector 6_Out	Saturated or peak and hold, 3A max continuous	Injector 6
C1-57	Injector 5_Out	Saturated or peak and hold, 3A max continuous	Injector 5
C1-58	Injector 4_Out	Saturated or peak and hold, 3A max continuous	Injector 4
C1-59	Injector 3_Out	Saturated or peak and hold, 3A max continuous	Injector 3
C1-60	Power Ground_In	Power Ground	Connect directly to battery ground
C1-61	+12V_In	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_Out	Saturated or peak and hold, 3A max continuous	Injector 2
C1-63	Injector 1_Out	Saturated or peak and hold, 3A max continuous	Injector 1
C1-64	+12V_In	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_In	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.

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C1-67	Analog_In_Temp_2	12 bit A/D, 2.49K pullup to 5V	See "Air Temperature" Setup Wizard for selection.
C1-68	Analog_In_Temp_3	12 bit A/D, 2.49K pullup to 5V	Normally used for Oil Temp input.
C1-69	Stepper_2A_Out	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_Out	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_Out	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_In	Power Ground	Connect directly to battery ground
C2-1	DBW2 Motor+_Out	5.0A max Throttle Control Hbridge Drive	+12V to open.
C2-2	DBW2 Motor-_Out	5.0A max Throttle Control Hbridge Drive	+12V to close.
C2-3	Power Ground_In	Power Ground	Connect directly to battery ground
C2-4	Injector 7_Out	Saturated or peak and hold, 3A max continuous	Injector 7
C2-5	Injector 8_Out	Saturated or peak and hold, 3A max continuous	Injector 8
C2-6	Injector 9_Out	Saturated or peak and hold, 3A max continuous	Injector 9.
C2-7	Injector 10_Out	Saturated or peak and hold, 3A max continuous	Injector 10.
C2-8	Power Ground_In	Power Ground	Connect directly to battery ground.
C2-9	+12V_In	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_Out	Saturated or peak and hold, 3A max continuous	Not used



Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C2-11	Injector 12_Out	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. Normally used as A/C Analog Request input.
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. Normally used as DBW APP1.
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. Normally used as DBW APP2.
C2-15	Analog_In_Temp_4	12 bit A/D, 2.49K pullup to 5V	Normally used as Charge Out Temperature input.
C2-16	Analog_In_Temp_5	12 bit A/D, 2.49K pullup to 5V	Normally used as Airbox Temperature input.
C2-17	Analog_In_Temp_6	12 bit A/D, 2.49K pullup to 5V	Normally used as Fuel Temperature input.
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.

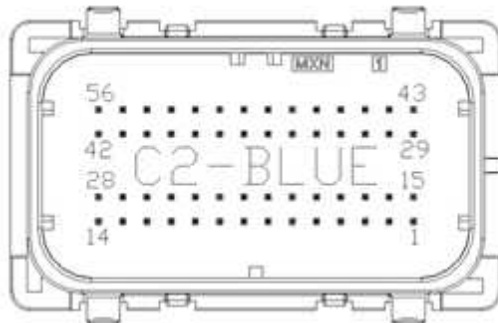
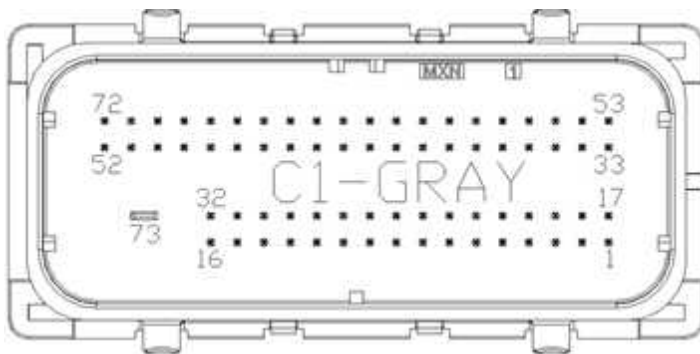
Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C2-20	Analog_In_15	12 bit A/D, 100K pullup to 5V	0-5V analog signal. Use +5V Out pins as power supply and Sensor Ground pins as the low reference. Do not connect signals referenced to +12V as this can permanently damage the ECU. Normally used as Exhaust Back Pressure input.
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. Normally used as DBW1_TPSB input.
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_Out	Lowside switch, 4A max with internal flyback diode, 2.2K 12V pullup. Inductive load should NOT have full time power.  12V pullup	See Setup Wizard page Tacho for configuration options.
C2-30	AGND_2_Out	Dedicated analog ground	Analog 0-5V sensor ground
C2-31	AGND_2_Out	Dedicated analog ground	Analog 0-5V sensor ground
C2-32	AGND_2_Out	Dedicated analog ground	Analog 0-5V sensor ground

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
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. Normally used as 3 Step Enable Switch input.
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. Normally used as USB Logging Request input.
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. Normally used as Charge Out Pressure input.
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_In	Power Ground	Connect directly to battery ground
C2-40	Power Ground_In	Power Ground	Connect directly to battery ground
C2-41	CanH_B_Out	Dedicated High Speed CAN Transceiver	Not used
C2-42	CanL_B_Out	Dedicated High Speed CAN Transceiver	Not used

Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C2-43	LowsideSwitch_8_Out	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.  12V pullup	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_Out	Lowside switch, 4A max with internal flyback diode. Inductive load should NOT have full time power.  No pullup	Normally used as Spare GPO1 output.
C2-45	UEGO 2 VM_In	Bosch UEGO Controller	Virtual Ground signal. Connect to pin 5 of Bosch UEGO sensor.
C2-46	UEGO 2 UN_In		Nernst Voltage signal. Connect to pin 1 of Bosch UEGO sensor
C2-47	UEGO 2 IP_In		Pumping Current signal. Connect to pin 6 of Bosch UEGO sensor
C2-48	UEGO 2 IA_In		Trim Current signal. Connect to pin 2 of Bosch UEGO sensor
C2-49	UEGO 2 HEAT_Out		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_In	Dedicated power management CPU	Full time battery power. MUST be powered before the ignition switch input is triggered (See C1-65).
C2-51	Coil 7_Out	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_Out	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_Out	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_Out	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.

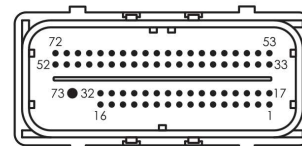


Infinity Pin	Hrdwr Ref.	Hardware Specification	Notes
C2-55	Highside Fuel Pump Switch_Out	Highside switch, 0.7A max, Solid State Relay, NO internal flyback diode.	+12V High Side Drive. Will prime for 2 seconds at key on and activate if RPM > 0.
C2-56	Not used	Not used	Not used

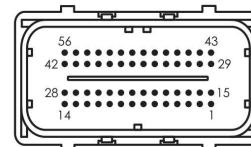


## Power Distribution Infinity-8/10/12

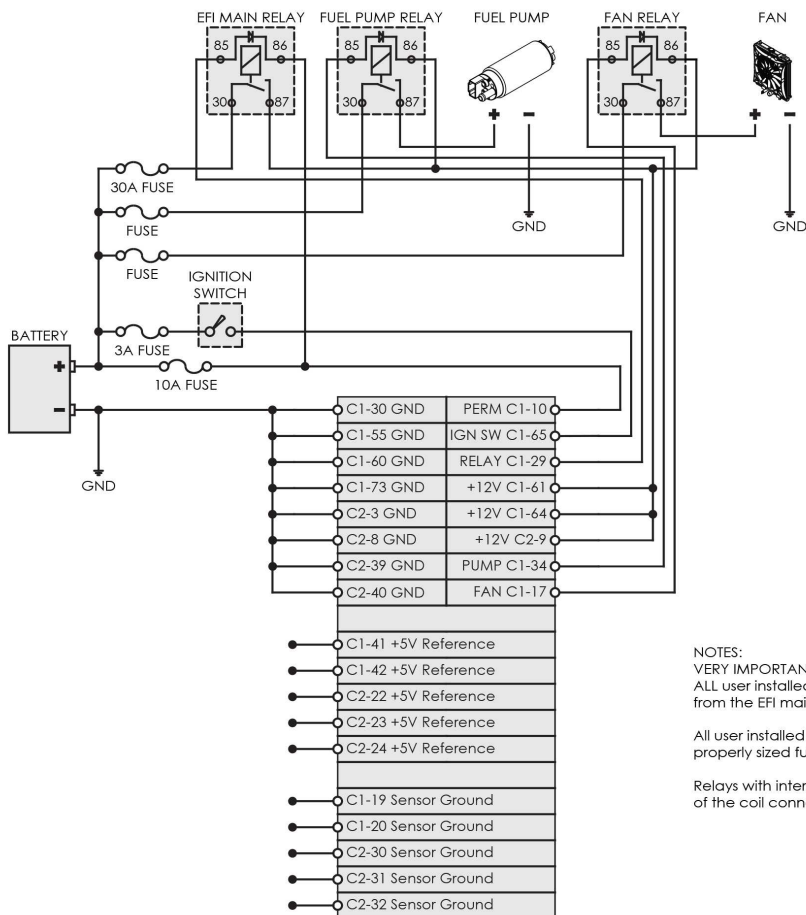
NAME	FUNCTION
GND	Battery ground
PERM	Fused connection to battery positive terminal (+12V, always hot)
IGN SW	Fused connection to vehicle ignition switch (+12V in RUN/CRANK only)
RELAY	Switched ground from ECU connected to relay coil primary negative
+12V	Relay driven +12V power source for ECU power and auxiliary outputs
+5V Reference	+5V supplied by ECU
Sensor Ground	Analog ground used as ground point for sensors



INFINITY "C1" 73 PIN



INFINITY "C2" 56 PIN



NOTES:  
**VERY IMPORTANT**  
 ALL user installed auxiliary relays must be powered by the output from the EFI main relay.

All user installed auxiliary circuits should be protected with a properly sized fuse as shown.

Relays with internal diodes must have the anode side of the coil connected to the ECU.



Drawing: Power Distribution

ECU: Infinity-8/10/12

Date: 08/05/2014

Rev: A

Engineer: Nakano

## 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.

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.