

Instruction Manual



P/N 30-3550 2002-2007 Suzuki GSXR1300 Hayabusa 6 Speed Plug & Play Adapter Harness



STOP!

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

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

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

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

WARNING!

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

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

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OVERVIEW

The 30-3550 AEM Infinity Adapter Kit was designed for the 2002–2007 Suzuki GSXR1300 Hayabusa. This is a true standalone system that eliminates the use of the factory ECU. The use of this adapter makes the kit “plug and play” so no cutting or splicing wires is necessary. The base configuration files available for the Infinity EMS are starting points only and will need to be modified for every specific application. Included in these instructions are descriptions of important differences between using the factory Suzuki ECU and using the AEM Infinity ECU.

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

- 30-7106 INFINITY 506

GETTING STARTED

Refer to the **10-7106 for EMS 30-7106 Infinity Quick Start Guide** for additional information on getting the engine started with the Infinity EMS. The Suzuki GSXR1300 Hayabusa base session is 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 2002–2007 Suzuki GSXR1300 Hayabusa

- 7106-XXXX-129 v96.1 Inf 506 Hayabusa (XXXX = serial number)

OPTIONS

30-2001 UEGO Wideband O2 Sensor

Bosch LSU4.2 Wideband O2 Sensor that connects to AEM 36-3550 Suzuki GSXR1300 Hayabusa Adapter Harness

30-3602 IP67 Logging Cable

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

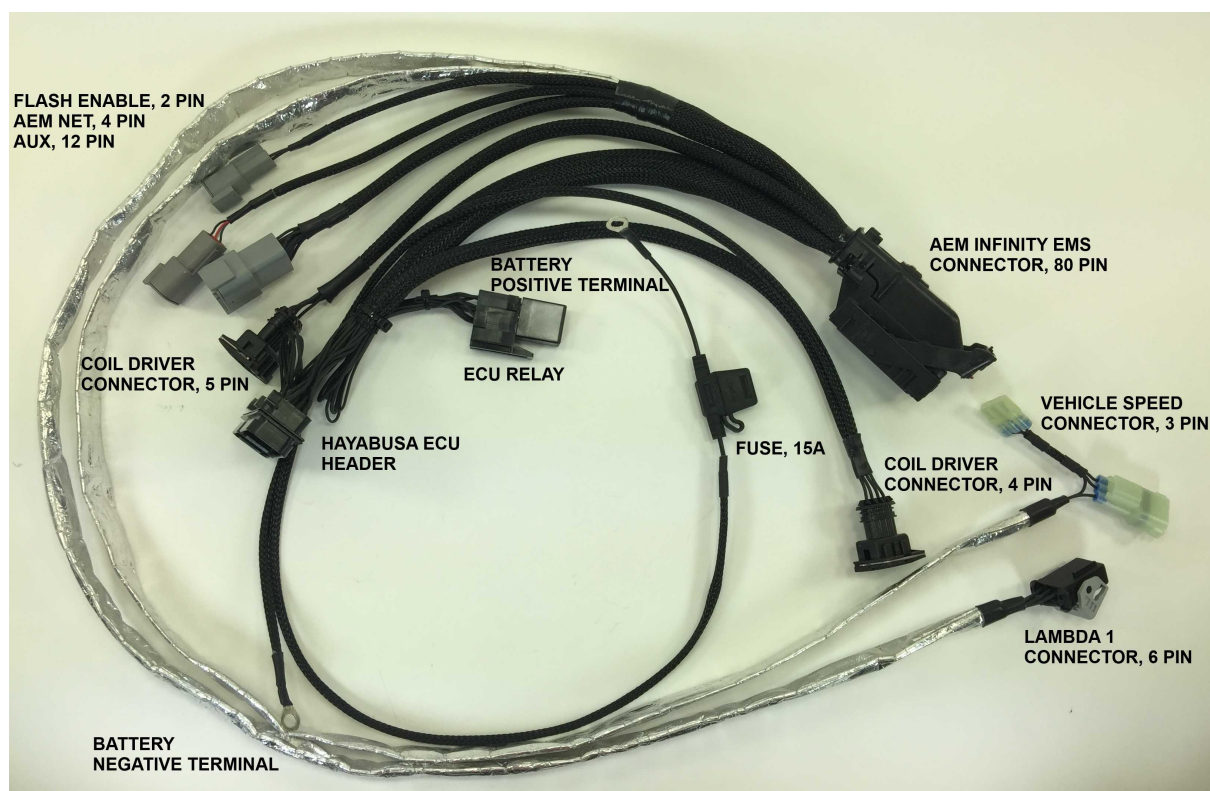
INFINITY CONNECTORS

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 Suzuki GSXR1300 Hayabusa kit is an adapter harness. This is used to make the connection between the AEM Infinity EMS and the Suzuki wiring harness plug and play. This is depicted below with the 80-pin connector and the Suzuki GSXR1300 Hayabusa header. There are also a few other integrated connectors within this harness described below.



The black 6 pin "Lambda 1" plug is for connecting UEGO wideband Bosch LSU4.2 sensors (AEM 30-2001).

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

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

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

The "Aux Connector Pinout" page of this manual has a description of each of the available input/output found in the Hayabusa specific "Auxiliary" connector.

COOLANT GAUGE

The Hayabusa coolant gauge uses a serial communication stream to receive coolant temperature from the stock ECU. The Infinity supports the serial stream coolant gauge functionality. The corresponding temperature vs. needle position chart illustrates how the gauge is characterized using the Infinity. The over temperature light will illuminate at 114 degrees C. The coolant gauge is only supported with the use of the AEM 30-3550 Hayabusa adapter harness.



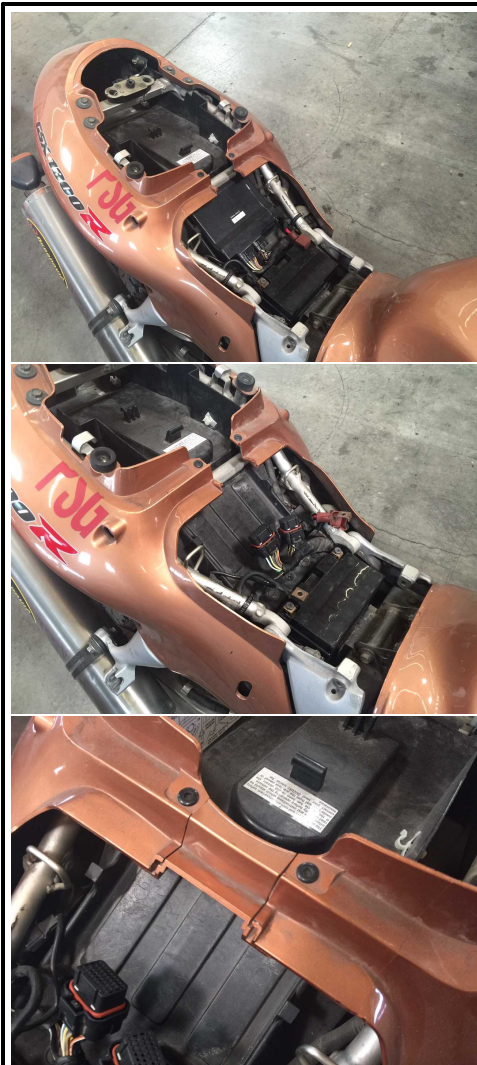
INFINITY EMS INSTALLATION

Step 1



Remove the rear cover and seat from the Hayabusa.

Step 2



Disconnect the battery and remove the Hayabusa ECU, tool kit (if present), and center connecting piece (shown left, picture 3).

Step 3



Carefully slide the Infinity into the tail of the Hayabusa as shown. Affix the Infinity to the tail in the orientation shown in pictures 2 and 3 using velcro strips.

Step 4



Slide the Infinity Molex 80-pin connector into the Hayabusa tail and plug it into the Infinity.

Step 5



Connect the two Hayabusa ECU connectors to the Infinity adapter harness.

Step 6



Carefully slide the 6-pin UEGO connector through the chassis and connect to AEM UEGO sensor (if equipped). Ensure all cables are securely fastened and routed in a safe manner.

Step 7



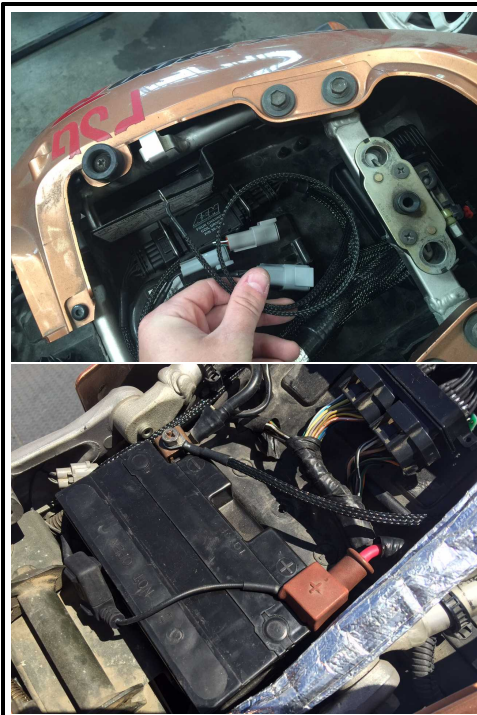
Carefully route the wheel speed connector through the chassis to the Hayabusa wheel speed connector in front of the coolant overflow tank. Unplug the Hayabusa wheel speed connectors and plug them into the Infinity adapter harness. Ensure all cables are securely fastened and routed in a safe manner.

Step 8



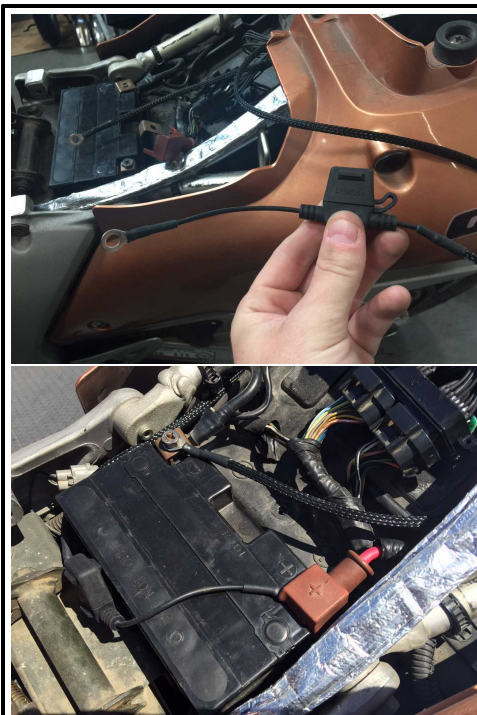
Install the AEM 4 channel coil driver and ensure adequate heat sinking is used.

Step 9



Locate the battery negative ring terminal (NO FUSE ON LEAD) from the coil driver connector and connect to the battery negative terminal.

Step 10



Find the battery positive ring terminal (HAS FUSE ON LEAD) and install onto the battery positive terminal.

Step 11



Shown left is what the finished install should look like. Re-connect the battery, re-install the seat, and rear cover.

PINOOTS

Hayabusa Pinout

Hayabusa Pin		Function	Infinity Pin	Infinity Hardware
1	1	Coil 1	C1-14	Coil 1
	2	Coil 2	C1-13	Coil 2
	3	Coil 3	C1-12	Coil 3
	4	Injector 1	C1-78	Injector 1
	5	Injector 2	C1-77	Injector 2
	6	Injector 3	C1-76	Injector 3
	7	Injector 4	C1-66	Injector 4
	8	VC Solenoid	C1-3	Lowside 6
	9	Fuel Pump	C1-41	Lowside 0
	10	Coil 4	C1-11	Coil 4
	11	---	---	---
	12	---	---	---
	13	---	---	---
	14	---	---	---
	15	---	---	---
	16	---	---	---
	17	Switched +12V	C1-48	Ignition Switch
	18	Ground	C1-33	Power Ground
	19	Starter Relay Input	---	Digital 7 (Clutch Switch)
	20	---	---	---
	21	Ground	C1-43	Power Ground
	22	---	---	---
	23	---	---	---
	24	---	---	---
	25	---	---	---
	26	Ground	C1-46	Power Ground
	27	Ground	C1-46	Power Ground
	28	---	---	---
	29	---	---	---
	30	---	---	---
	31	---	---	---
	32	---	---	---
	33	---	---	---
	34	---	---	---
2	35	Ground	C1-67	Power Ground
	36	Crank -	C1-18	VR0 -
	37	Cam +	C1-20	VR1 +
	38	---	---	---

39	---	---	---
40	---	---	---
41	---	---	---
42	---	---	---
43	Crank +	C1-17	VR0 +
44	Cam -	C1-19	VR1 -
45	---	---	---
46	---	---	---
47	---	---	---
48	Sensor 5V	C1-49	+5V Ref
49	Throttle Position	C1-51	Analog 7
50	Air Temperature	C1-39	Analog 2
51	Water Temperature	C1-38	Analog 1
52	Barometric Pressure	C1-75	Analog 10
53	---	---	---
54	Sensor Ground	C1-23	Analog Ground 1
55	Tacho	C1-2	Lowside 5
56	Dash Serial	C1-30	Serial Tx (Digital 5)
57	Gear Position	C1-74	Analog 11
58	MAP Sensor	C1-52	Analog 8
59	Tip Over Sensor	C1-70	Analog 18
60	---	---	---

Infinity 6 Pinout

Pin	Infinity-6 Hardware	2002-2007 Hayabusa	Function
1	Lowside 4	VSS Connector Pin 3	Speedometer
2	Lowside 5	C2-55	Tacho
3	Lowside 6	C2-8	VCSV
4	Lowside 7	---	---
5	UEGO1 Heat	UEGO-4	UEGO1 Heat-
6	UEGO1 IA	UEGO-2	UEGO1 IA
7	UEGO1 IP	UEGO-6	UEGO1 IP
8	UEGO1 UN	UEGO-1	UEGO1 UN
9	UEGO1 VM	UEGO-5	UEGO1 VM
10	+12V Perm Power	ECU Relay Pin 85	Batt. Perm Power
11	Coil 4	Coil Driver Pin 5	Coil_3 (Cyl 4)
12	Coil 3	Coil Driver Pin 4	Coil_2 (Cyl 3)
13	Coil 2	Coil Driver Pin 2	Coil_1 (Cyl 2)
14	Coil 1	Coil Driver Pin 1	Coil_0 (Cyl 1)
15	Coil 6	---	---
16	Coil 5	---	---
17	VR0 (+) - Crank	C2-43	Crank VR0 +
18	VR0 (-) - Crank	C2-36	Crank VR0 -
19	VR1 (-) - Cam	C2-44	Cam VR1 -
20	VR1 (+) - Cam	C2-37	Cam VR1 +

21	Lowside 2	AUX Pin 12	Lowside_2 (Aux)
22	Lowside 3	AUX Pin 11	Lowside_3 (Aux)
23	Sensor GND	C2-54	Sensor Ground
24	Sensor GND	AUX Pin 3	Sensor Ground
25	Digital 0 - Crank	---	---
26	Digital 1 - Cam1	---	---
27	Digital 2 - Cam2	---	---
28	Digital 3	VSS Connector Pin 3	Digital_3 (Vehicle Speed)
29	Digital 4	AUX Pin 9	Digital_4 (Aux)
30	Digital 5	C2-56	Serial Tx (Coolant Temp)
31	Digital 6	AUX Pin 6	Digital_6 (Aux)
32	Digital 7	C2-19	Clutch Switch
33	GND	C2-18	Power Ground
34	CAN A -	---	---
35	CAN A +	---	---
36	CAN B -	---	---
37	CAN B +	---	---
38	Analog 1	C2-51	Coolant Temp
39	Analog 2	C2-50	Air Temp
40	Analog 3	AUX Pin 2	Temp_3 (Aux)
41	Lowside 0	C2-9	Fuel Pump
42	Lowside 1	AUX Pin 7	Lowside_1 (Aux)
43	GND	C2-21	Power Ground
44	Knock 0	---	---
45	Knock 1	---	---
46	GND	C2-26 (Spliced)	Power Ground
47	12V_Relay_Control	Relay Pin 86	12V+_Relay_Control
48	+12V SW (Ign Switch)	C2-17	Ignition Switch
49	+5V_Out	C2-48 (Spliced)	+5V_Out
50	+5V_Out	AUX Pin 4	+5V_Out
51	Analog 7	C2-49	Throttle Position
52	Analog 8	C2-58	MAP Sensor
53	Analog 9	AUX Pin 1	Analog_9 (Aux)
54	VR2 (+) - Driven Wheel	---	---
55	VR2 (-) - Driven Wheel	---	---
56	VR3 (-) - Tag Wheel	---	---
57	VR3 (+) - Tag Wheel	---	---
58	Highside 0	---	---
59	Stepper_1B	---	---
60	Stepper_2B	---	---
61	HBridge0_0	---	---
62	HBridge0_1	---	---
63	+12V	Relay Pin 87	+12V
64	Injector 6	---	---
65	Injector 5	---	---
66	Injector 4	C2-7	Injector_3 (Cyl 4)
67	GND	C2-35	Power Ground
68	+12V	---	---
69	Analog 19	---	---
70	Analog 18	C2-59	Tip Over Sensor

71	Analog 16	AUX Pin 10	Analog_16 (Aux)
72	Harness_Flash_Enable	---	---
73	Analog 13	AUX Pin 5	Analog_13 (Aux)
74	Analog 11	C2-57	Gear
75	Analog 10	C2-52	Baro Sensor
76	Injector 3	C2-6	Injector_2 (Cyl 3)
77	Injector 2	C2-5	Injector_1 (Cyl 2)
78	Injector 1	C2-4	Injector_0 (Cyl 1)
79	Stepper_2A	---	---
80	Stepper_1A	---	---

Aux Connector Pinout

Aux Pin	Infinity Pin	Infinity Hardware	Default Function
1	C1-53	Analog 9	Fuel Pressure
2	C1-40	Analog Temp 3	Oil Temperature
3	C1-24	Sensor Ground	Sensor Ground
4	C1-50	+5V	+5V
5	C1-73	Analog 13	Oil Pressure
6	C1-31	Digital 6	General Frequency/Duty Input
7	C1-42	Lowside 1	Boost Control
8	C1-63	+12V	+12V
9	C1-29	Digital 4	Turbo Speed
10	C1-71	Analog 16	Mode Switch
11	C1-22	Lowside 3	General Purpose Output
12	C1-21	Lowside 2	General Purpose Output

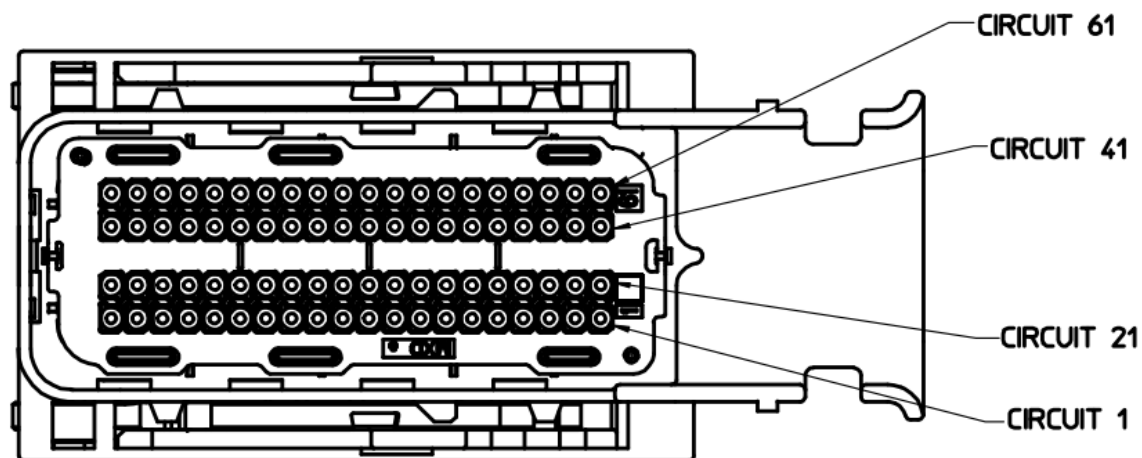
Miscellaneous Pinouts

LAMBDA 1		
Lambda Pin	Infinity Pin	Default Pin Function
1	C1-8	UEGO1 UN
2	C1-6	UEGO1 IA
3	---	+12V
4	C1-5	UEGO1 Heat
5	C1-9	UEGO1 VM
6	C1-7	UEGO1 IP

AEMNet		
Deutsch Pin	Infinity Pin	Default Pin Function
1	C1-35	CAN A+
2	C1-34	CAN A-
3	---	+12V
4	---	Ground

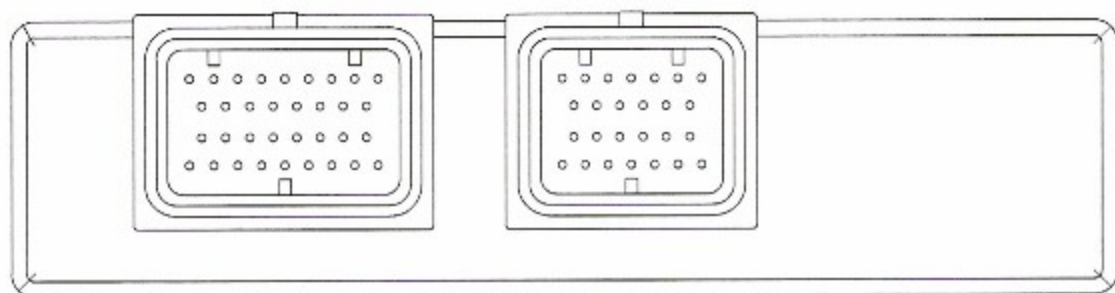
FLASH ENABLE		
Deutsch Pin	Infinity Pin	Default Pin Function
1	C1-72	Harness Flash Enable
2	C1-10	Permanent Power

Infinity Pin Numbering



Viewed from Wire Side

Hayabusa Pin Numbering



1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	
18	19	20	21	22	23	24	25	
26	27	28	29	30	31	32	33	34

35	36	37	38	39	40	41		
42	43	44	45	46	47			
48	49	50	51	52	53			
54	55	56	57	58	59	60		

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.