

***Installation Instructions for:
EMS P/N 30-6320***

2006 Mitsubishi EVO IX

2005-2006 Mitsubishi EVO IX (Euro)

2003-2004 Mitsubishi EVO VIII (RHD Euro)



WARNING:

This installation is not for the tuning novice nor the PC illiterate! Use this system with EXTREME caution! The AEM EMS System allows for total flexibility in engine tuning. Misuse of this product can destroy your engine! If you are not well versed in engine dynamics and the tuning of management systems or are not PC literate, please do not attempt the installation. Refer the installation to a AEM trained tuning shop or call 800-423-0046 for technical assistance. You should also visit the AEM EMS Tech Forum at <http://www.aempower.com>

NOTE: AEM holds no responsibility for any engine damage that results from the misuse of this product!

This product is legal in California for racing vehicles only and should never be used on public highways.

ADVANCED ENGINE MANAGEMENT INC.
2205 126th Street Unit A Hawthorne, CA. 90250
Phone: (310) 484-2322 Fax: (310) 484-0152
<http://www.aempower.com>
Instruction Part Number: 10-6320
© 2010 Advanced Engine Management, Inc.

Thank you for purchasing an AEM Engine Management System.

The AEM Engine Management System (EMS) is the result of extensive development on a wide variety of cars. Each system is engineered for the particular application. The AEM EMS differs from all others in several ways. The EMS is a stand alone system, which completely replaces the factory ECU and features unique Plug and Play Technology, which means that each system is configured especially for your make and model of car without any jumper harnesses. There is no need to modify your factory wiring harness and in most cases your car may be returned to stock in a matter of minutes.

For stock and slightly modified vehicles, the supplied startup calibrations are configured to work with OEM sensors, providing a solid starting point for beginner tuning. For more heavily modified cars, the EMS can be reconfigured to utilize aftermarket sensors and has many spare inputs and outputs allowing the elimination of add-on rev-limiters, boost controllers, nitrous controllers, fuel computers, etc. It also includes a configurable onboard 1MB data logger that can record any 16 EMS parameters at up to 250 samples per second. Every EMS comes with all functions installed and activated; there is no need to purchase options or upgrades to unlock the full potential of your unit.

The installation of the AEM EMS on the supported vehicles uses the stock sensors and actuators. After installing the AEMTuner software, the startup calibration will be saved to the following folder on your PC:

C:\Program Files\AEM\AEMTuner\Calibrations\Mitsubishi-DSM

Multiple calibrations may be supplied for each EMS; additional details of the test vehicle used to generate each calibration can be found in the Calibration Notes section for that file.

Please visit the AEM Performance Electronics Forum at <http://www.aempower.com> and register. We always post the most current strategy release, PC Software and startup calibrations online. On the forum, you can find and share many helpful hints/tips to make your EMS perform its best.

TUNING NOTES AND WARNING:

While the supplied startup calibration may be a good starting point and can save considerable time and money, it will not replace the need to tune the EMS for your specific application. AEM startup calibrations are not intended to be driven aggressively before tuning. We strongly recommend that every EMS be tuned by someone who is already familiar with the AEM software and has successfully tuned vehicles using an AEM EMS. Most people make mistakes as part of the learning process; be warned that using your vehicle as a learning platform can damage your engine, your vehicle, and your EMS.

Read and understand these instructions BEFORE attempting to install this product.

1) Install AEMTuner software onto your PC

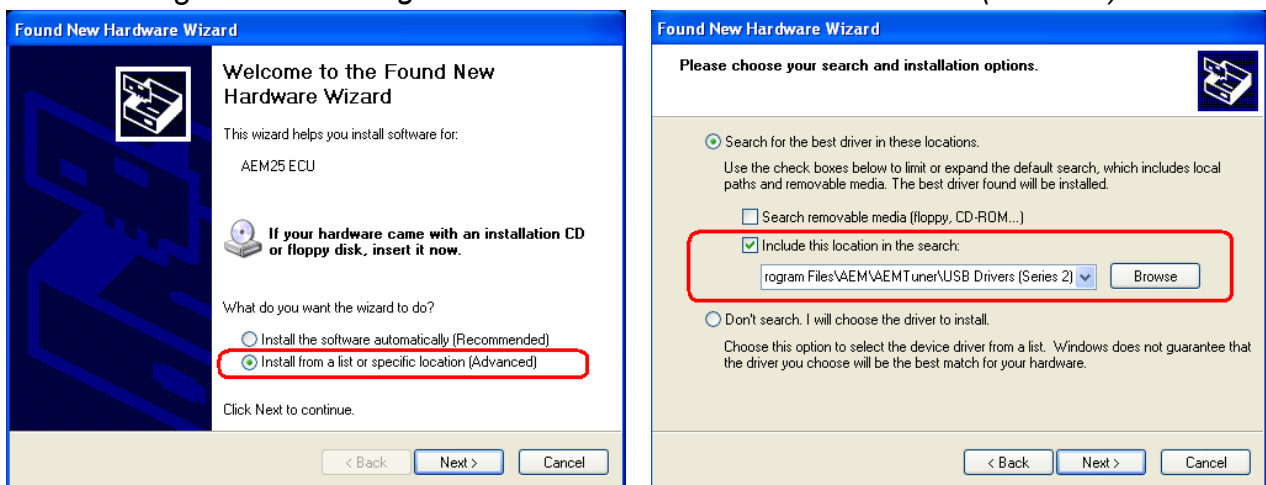
The latest version of the AEMTuner software can be downloaded from the AEMTuner section of the AEM Performance Electronics forums. Series 2 units are not supported by the older AEMPro tuning software.

2) Remove the Stock Engine Control Unit

- a) Access the stock Engine Control Unit (ECU). The location of the ECU is behind the glove box.
- b) Carefully disconnect the wiring harness from the ECU. Avoid excessive stress or pulling on the wires, as this may damage the wiring harness. Some factory ECUs use a bolt to retain the factory connectors, and it must be removed before the harness can be disconnected. There may be more than one connector, and they must all be removed without damage to work properly with the AEM ECU. Do not cut any of the wires in the factory wiring harness to remove them.
- c) Remove the fasteners securing the ECU to the car body, and set them aside. Do not destroy or discard the factory ECU, as it can be reinstalled easily for street use and troubleshooting.

3) Install the AEM Engine Management System

- a) Plug the factory wiring harness into the AEM EMS and position it so the wires are not pulled tight or stressed in any manner. Secure the EMS with the provided Velcro fasteners.
- b) Plug the comms cable into the EMS and into your PC.
- c) Turn the ignition on but do not attempt to start the engine.
- d) The USB drivers must be installed the first time you connect to a Series 2 EMS with an onboard USB port. When the Series 2 EMS is connected to the PC's USB port and receiving power from the vehicle, the "Found New Hardware" window will appear. Select "Install from a list of specific location (Advanced)" and browse to the following folder: *C:\Program Files\AEM\AEMTuner\USB Drivers (Series 2)*



- e) With the AEMTuner software open, select **ECU>>Upload Calibration** to upload the startup calibration file (.cal) that most closely matches the vehicle's configuration to be tuned. Check the Notes section of the calibration for more info about the vehicle it was configured for. These files can be found in the following folder:
C:\Program Files\AEM\AEMTuner\Calibrations\Mitsubishi-DSM
- f) Set the throttle range: Select Wizards>>Set Throttle Range and follow the on-screen instructions. When finished, check that the 'Throttle' channel never indicates

less than 0.2% or greater than 99.8%, this is considered a sensor error and may cause some functions including idle feedback and acceleration fuel to operate incorrectly.

4) Ready to begin tuning the vehicle.

- a) Before starting the engine, verify that the fuel pump runs for a couple of seconds when the key is turned on and there is sufficient pressure at the fuel rail.
If a MAP sensor is installed, check that the Engine Load indicates something near atmospheric pressure (approximately 101kPa or 0 PSI at sea level) with the key on and engine off. Press the throttle and verify that the 'Throttle' channel responds but the Engine Load channel continues to measure atmospheric pressure correctly.
- b) Start the engine and make whatever adjustments may be needed to sustain a safe and reasonably smooth idle. Verify the ignition timing: Select **Wizards>>Ignition Timing Sync** from the pull-down menu. Click the '*Lock Ignition Timing*' checkbox and set the timing to a safe and convenient value (for instance, 10 degrees BTDC). Use a timing light and compare the physical timing numbers to the timing value you selected. Use the *Sync Adjustment Increase/Decrease* buttons to make the physical reading match the timing number you selected.
- c) Note: This calibration needs to be properly tuned before driving the vehicle. It is intended for racing vehicles and may not operate smoothly at idle or part-throttle.
NEVER TUNE THE VEHICLE WHILE DRIVING

5) Troubleshooting an engine that will not start

- a) Double-check all the basics first... engines need air, fuel, compression, and a correctly-timed spark event. If any of these are lacking, we suggest checking simple things first. Depending on the symptoms, it may be best to inspect fuses, sufficient battery voltage, properly mated wiring connectors, spark using a timing light or by removing the spark plug, wiring continuity tests, measure ECU pinout voltages, replace recently-added or untested components with known-good spares. Check that all EMS sensor inputs measure realistic temperature and/or pressure values.
- b) If the EMS is not firing the coils or injectors at all, open the Start tab and look for the 'Stat Sync'd' channel to turn ON when cranking. This indicates that the EMS has detected the expected cam and crank signals; if Stat Sync'd does not turn on, monitor the Crank Tooth Period and T2PER channels which indicate the time between pulses on the Crank and T2 (Cam) signals. Both of these channels should respond when the engine is cranking, if either signal is not being detected or measuring an incorrect number of pulses per engine cycle the EMS will not fire the coils or injectors.
- c) If the Engine Load changes when the throttle is pressed this usually indicates that there is a problem with the MAP sensor wiring or software calibration (when the EMS detects that the MAP Volts are above or below the min/max limits it will run in a failsafe mode using the TPS-to-Load table to generate an artificial Engine Load signal using the Throttle input). This may allow the engine to sputter or start but not continue running properly.

Application Notes for EMS P/N 30-6320

2006 Mitsubishi EVO IX

2005-2006 Mitsubishi EVO IX (Euro)

2003-2004 Mitsubishi EVO VIII (RHD Euro)

Mitsubishi Models:	2006 EVO IX 2005-2006 EVO IX (Euro) 2003-2004 EVO VIII (RHD Euro)
Engine Displacement:	2.0L
Engine Configuration:	I4
Firing Order:	1-3-4-2
N/A, S/C or T/C:	Turbocharged
Load Sensor Type:	Karman Vortex MAF
# Coils:	2 (wasted spark)
Ignition driver type:	0-5V, Falling Edge trigger
# Injectors:	4 (P&H drivers: Inj1-4)
Injector Flow Rate:	550 cc/min
Injector Resistance:	2.5 Ω
Factory Inj Resistors:	Yes (6 Ω)
Injection Mode:	Sequential
Knock Sensors used:	1
Lambda Sensors used:	1 (aftermarket wideband: factory O2 not supported)
Idle Motor Type:	Stepper
Main Relay Control:	Yes (Switch1 in, Coil5 out)
Crank Pickup Type:	Hall
Crank Teeth/Cycle:	4
Cam Pickup Type:	Hall
Cam Teeth/Cycle:	2
Transmissions Offered:	M/T, A/T
Trans Supported:	M/T Only
Drive Options:	FWD, AWD

Spare Injector Drivers:	Inj 7, Pin 8
Spare Injector Drivers:	Inj 8, Pin 6
Spare Injector Drivers:	Inj 9, Pin 19
Spare Injector Drivers:	Inj 11, Pin 17
Spare Injector Drivers:	Inj 12, Pin 81
Spare Coil Drivers:	Coil 3, Pin 90
Spare Coil Drivers:	Coil 4, Pin 76
EGT #1 Location:	Pin 52
EGT #2 Location:	Pin 72
EGT #3 Location:	Pin 74
EGT #4 Location:	Pin 97
Spare 0-5V Channels:	MAF, Pin 66
Spare 0-5V Channels:	ADCR11, Pin 93
Spare 0-5V Channels:	ADCR14, Pin 96
Spare Low Side Driver:	Low Side 1, Pin 3
Spare Low Side Driver:	Low Side 2, Pin 26
Spare Low Side Driver:	Low Side 8, Pin 35
Spare Low Side Driver:	Low Side 12, Pin 48
Check Engine Light:	Low Side 10, Pin 22
Spare Switch Input:	
Spare Switch Input:	Switch 5, Pin 54
A/C Switch Input:	Switch 6, Pin 83
Clutch Switch Input:	Switch 4, Pin 88

1	2	3 4					5 6		7 8		41	42	43	44				45	46	47	71	72	73	74				75	76	77									
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	48	49	50	51	52	53	54	55	56	57	58	59	78	79	80	81	82	83	84	85	86	87	88	89	90
24	25	26	27	28	29	30 31		32	33	34 35		60	61	62	63	64	65 66		67 68		91	92	93	94 95		96 97		98	99 100										

WARNING:

Switch input pins must connect to ground; the switch should not provide 12V power to the EMS because that will not be detected as on or off. Connecting 12V power to Switch pins may damage your EMS and void your warranty.

Wiring harness destinations for non-USDM vehicles may be different than listed in the pinout charts below. If installing this EMS on a vehicle not originally sold in the US, please verify that the vehicle's wiring harness matches the pinout shown here before installing.

The function of several pins have been changed from the original 30-1320 EMS, please see the pinout chart for more info.

Primary Load Sensor, EMS Fuel Strategy

The factory MAF (mass air flow) sensor can be removed to help decrease intake air restriction; the EMS can be configured to use a MAP sensor to determine engine load. It is recommended to use a 3.5 bar MAP sensor or higher (P/N 30-2130-50). Please be aware that the IAT (Intake Air Temperature) sensor is integrated into the factory MAF sensor. If the factory MAF / IAT sensor is removed, you may wish to install an AEM IAT Sensor Kit (P/N 30-2010), which includes a sensor, wire connector, and aluminum weld-in bung. While the factory MAF sensor locates the IAT sensor upstream of the turbocharger inlet, it may be preferable to install an IAT sensor downstream of the intercooler to accurately measure charge temperatures.

The factory Mass Air Flow and Intake Air Temperature sensors can be used as the primary load input for the AEM EMS if desired. Please check the Notes section of each calibration for more info about the vehicle setup and fuel strategy that calibration was configured to use.

EMS Fuel Map, Boost Fuel Trim Table

The 30-6320 speed density conversion maps provided utilize the “*Boost Fuel Trim Table*” to provide a 1:1 fuel compensation above and below atmospheric pressure. In the startup calibration, the “*Boost Fuel Trim Table*” is configured to provide twice as much fuel when the manifold pressure is twice as high and half the fuel when the manifold pressure is half as high; this should help simplify the tuning process for different vacuum and boost levels. Notice the values in the main “*Fuel Map*” do not change above 100 kPa (0 psi boost), the fuel correction is being made by the “*Boost Fuel Trim Table*.”

Note: the “*Boost Fuel Trim Table*” must be adjusted if a different MAP sensor is installed or if the Load breakpoints are adjusted. The Boost Fuel Trim value should be set to -90 at 10kPa, 0 at 100 kPa, +100 at 200 kPa, +200 at 300 kPa, etc...

Peak and Hold Injector Drivers

Injectors 1-6 include Peak (4 amps) and Hold (1 amp) injector drivers. These drivers may be used with peak and hold or saturated type injectors. The factory Mitsubishi wiring harness contains a resistor pack to prevent excessive current when using low-impedance injectors with the stock ECU. With the 30-6320 installed, users can elect to remove and bypass the OEM resistor pack for more precise control of low-impedance injectors.

Please note that the injector response time will be different with and without the factory injector resistor pack. If the OEM resistor pack has been removed and bypassed, please use the correct battery offset wizard for your injectors. Most battery offset wizards will specify <P&H DRIVER> if they are intended for use without a resistor pack.

Ignition System

The Mitsubishi Lancer Evolution uses 2 wasted spark ignition coils. Because these “smart” coils have built-in igniters, new “dumb” coils must be used if an aftermarket capacitive discharge ignition (CDI) system is to be installed. Some aftermarket ignition systems require a rising edge trigger, in which case an external igniter would also need to be used. The AEM Twin Fire ignition systems have a selectable trigger edge to eliminate the need for an external igniter. The EMS has individual cylinder trims and can be configured to adjust the ignition timing for each cylinder (even using the factory coils in wasted-spark mode). Cylinder 1 uses the Coil1 trim table, Cylinder 2 uses the Coil1 trim table, Cylinder 3 uses the Coil 2B trim table, and Cylinder 4 uses the Coil1B trim table.

MIVEC System

MIVEC stands for “Mitsubishi Innovative Valve timing Electronic Control” and is used to describe the company’s cam timing and lift control system. This term is used as a catch-all for two distinctly different cam control systems offered by the company. The first is a variable intake valve lift and duration control system which can be found on the 4G69 2.4L engine fitted to the regular Lancer. It operates similarly to Honda’s VTEC system where the intake valve lift and duration change when the system is activated. The second is a variable intake cam timing control system that is found on the 4G63 2.0L Turbo engine fitted to the EVO IX. This system allows up to 31 degrees of intake cam timing adjustment in relation to the crankshaft. (31 crankshaft degrees)

This system is active on this EMS when used with the provided startup calibrations and can be adjusted through the use of the ‘VVC 1 Target’. Adjustments to the intake cam timing are made by changing the values in the ‘VVC 1 Target’ map per Engine RPM and Engine Load. The values in the ‘VVC 1 Target’ map can vary from 0.0 degrees for no intake cam advance to 31 degrees for full intake cam advance.

Boost Control

The Mitsubishi Lancer Evolution boost solenoid can be used and is setup in the base map for low boost. There is no wiring necessary. We have found through testing that the amount of boost the engine will make with the stock turbo is limited because of the low air flow capacity of the stock boost control solenoid. You may want to replace the stock boost control solenoid with a higher flowing one which will allow you to run a higher boost level and will also reduce the amount boost taper at higher engine speeds. The AEM Boost Control Solenoid can be used as a replacement for the stock solenoid. This solenoid has an outstanding pressure range rating and accepts 1/8” NPT for high boost applications.

Charging System

The EVO-IX has the ability to shut down the alternator via the EMS. This is performed via the Injector#7 general purpose output (pin 8). Turning this ON will stop charging the battery, reducing the parasitic drain on the engine. This is not activated in the AEM startup calibrations.

Fuel Pump Control

The Low Side 11 output (pin 21) controls the main Fuel Pump Relay which turns the pump on or off.

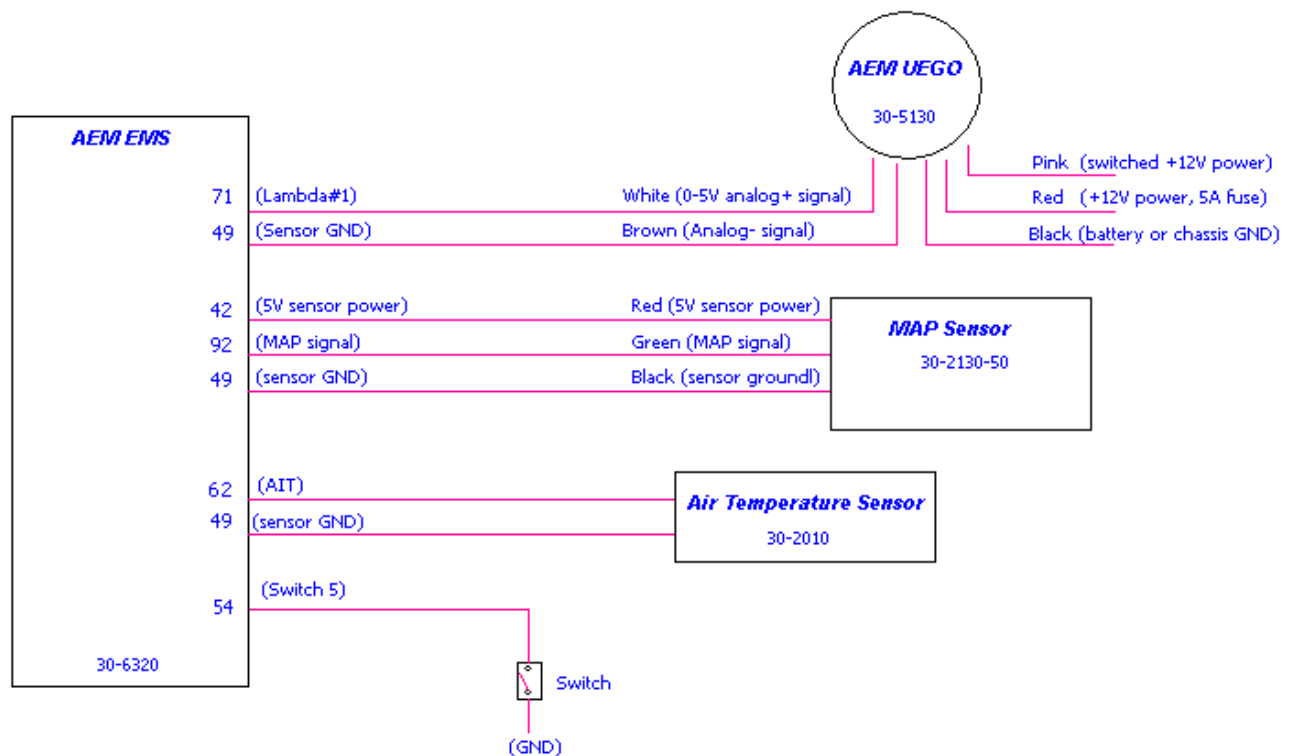
The Low Side 4 output (pin 55) controls the Fuel Pump Low Speed Relay (Relay 3 in Mitsubishi wiring diagrams). This relay can be activated to decrease voltage sent to the fuel pump. This output is always disabled in the start-up calibration.

The Low Side 12 output (pin 48) controls the Fuel Pressure Solenoid. The Fuel Pressure Solenoid causes the Fuel Pressure Regulator’s vacuum line to reference atmospheric pressure rather than the intake manifold pressure. This will increase fuel pressure in vacuum, but the lack of pressure reference will lead to insufficient fuel pressure when manifold pressure is above atmospheric pressure. This output is always disabled in the start-up calibration.

WARNING: Reducing the voltage sent to the fuel pump can affect fuel pump output (volume and/or pressure). If you wish to decrease fuel pump speed, monitor fuel pressure and air/fuel ratio very carefully to avoid engine damage!

Wiring accessories to the EMS:

Please follow this suggested wiring diagram when adding accessories such as UEGO gauges, MAP sensors, IAT sensors, or switches for use with the EMS. Note that wire polarity is not important for the Air Temperature sensor.



Connection Diagram for EMS P/N 30-6320

PnP		Means the Plug and Play system comes with this configured for proper operation of this device. Is still available for reassignment by the end user.		
Avail		Means the function is not currently allocated and is available for use		
Dedicated		Means the location is fixed and cant be changed		
Pin	2006 Mitsubishi Lancer EVO IX	AEM EMS 30-6320	I/O	Notes
1	No. 1 Injector	P&H Injector #1	Output	Injector 1 (Peak/Hold 4A/1A driver)
2	No. 4 Injector	P&H Injector #4	Output	Injector 4 (Peak/Hold 4A/1A driver)
3	Front Heated Oxygen Sensor Heater	Low Side Driver #1	Output	Available Switched Gnd, 1.5A Max
4	---	PW #3	Output	Available Switched Gnd, 1.5A Max
5	Secondary Air Control Solenoid Valve (European EVO Only)	Idle #5	Output	Available Switched Gnd, 1.5A Max
6	EGR Vacuum Solenoid (US Only) / Wastegate Solenoid 2 (European EVO Only)	Injector #8	Output	Available Switched Gnd, 1.5A Max
7	---	---	---	---
8	Generator G Terminal	Injector #7	Output	PnP for Alternator Control
9	No. 2 Injector	P&H Injector #2	Output	Injector 2 (Peak/Hold 4A/1A driver)
10	---	Injector #5	Output	Available Switched Gnd, 1.5A Max
11	Ignition Power Transistor Coil 1 & 4	Coil #1	Output	PnP for Coil 1 / Coil1B
12	Ignition Power Transistor Coil 2 & 3	Coil #2	Output	PnP for Coil 2 / Coil2B
13	---	CAN1H	---	Dedicated
14	Stepper Motor Coil A1	Idle #1	Output	PnP for Stepper Idle Motor
15	Stepper Motor Coil B1	Idle #3	Output	PnP for Stepper Idle Motor
16	Evaporative Emission Purge Solenoid	Idle #7	Output	Available Switched Gnd, 1.5A Max
17	---	Injector #11	Output	Available Switched Gnd, 1.5A Max
18	Fan Control Module	Low Side Driver #9	Output	User 1 PW output, coolant
19	Volume Airflow Sensor Reset Signal	Injector #9	Output	PnP for VAF Sensor
20	A/C Compressor Clutch Relay	Low Side Driver #6	Output	PnP for A/C
21	Fuel Pump Relay	Low Side Driver #11	Output	PnP for Fuel Pump Control
22	Malfunction Indicator Lamp	Low Side Driver #10	Output	Available Switched Gnd, 1.5A Max
23	---	High Side Driver #1	Output	Available Switched 12V, 1.5A Max
24	No. 3 Injector	P&H Injector #3	Output	Injector 3 (Peak/Hold 4A/1A driver)
25	---	Injector #6	Output	Available Switched Gnd, 1.5A Max
26	Rear Heated Oxygen Sensor Heater	Low Side Driver #2	Output	Available Switched Gnd, 1.5A Max
27	---	PW #1i	Output	Available Switched Gnd, 1.5A Max
28	Stepper Motor Coil A2	Idle #2	Output	PnP for Stepper Idle Motor
29	Stepper Motor Coil B2	Idle #4	Output	PnP for Stepper Idle Motor
30	Condenser Fan Relay HI	Low Side Driver #3	Output	PnP for Fan Control
31	Condenser Fan Relay LO	Low Side Driver #5	Output	PnP for Fan Control
32	Oil Feeder Control Valve	Injector #10	Output	PnP for MIVEC VVC
33	---	CAN1L	---	Dedicated
34	Sensor Ground	Sensor Ground	Output	Dedicated, sensors only
35	Evaporative Emission Ventilation Solenoid	Low Side Driver #8	Output	Available Switched Gnd, 1.5A Max

1	2	3 4					5 6	7 8	41 42 43 44				45 46 47	71 72	73 74				75 76 77																	
9	10	11	12	13	14	15	16	17	18	19	20	21	22 23	48 49	50	51	52	53	54	55	56	57	58	59	78 79	80	81	82	83	84	85	86	87	88	89	90
24	25	26	27	28	29	30	31	32	33	34	35	60	61	62	63	64	65	66	67	68	91	92	93	94	95	96	97	98	99	100						

Connection Diagram for EMS P/N 30-6320

PnP	Means the Plug and Play system comes with this configured for proper operation of this device. Is still available for reassignment by the end user.
Avail	Means the function is not currently allocated and is available for use
Dedicated	Means the location is fixed and cant be changed

Pin	2006 Mitsubishi Lancer EVO IX	AEM EMS 30-6320	I/O	Notes
41	Turbocharger Wastegate Solenoid	PW #2	Output	PnP for Boost Control
42	Sensor Supplied Voltage	5V Sensor	Output	Dedicated
43	Crankshaft Position Sensor	Crank (T1)	Input	Dedicated
44	Engine Coolant Temperature Sensor	Coolant	Input	PnP for Coolant Temperature
45	Tachometer Signal	Low Side Driver #7	Output	PnP for Tachometer
46	Power Ground	Power Ground	Input	Dedicated
47	Power Supply	Power	Input	Dedicated
48	Fuel Pressure Solenoid Valve	Low Side Driver #12	Output	PnP for Fuel Pressure Control
49	Sensor Ground	Sensor Ground	Output	Dedicated
50	Camshaft Position Sensor	Cam (T2)	Input	Dedicated
51	Barometric Pressure Sensor	Baro	Input	PnP for Barometric Pressure
52	Generator FR Terminal	EGT #1	Input	Available, RTD Temperature
53	Intake Camshaft Position Sensor	Car Speed	Input	PnP for MIVEC
54	Power Steering Pressure Switch	Switch #5	Input	Avail, switch must connect to ground
55	Fuel Pump Relay 3 (Low Speed)	Low Side Driver #4	Output	PnP for Fuel Pump
56	Intercooler Water Spray Motor (European EVO Only)	PW #1	Output	PnP for Intercooler Water Spray
57	MFI Relay	Main Relay (C5)	Output	Dedicated
58	Power Ground	Power Ground	Input	Dedicated
59	Power Supply	Power	Input	Dedicated
60	Battery Backup	Permanent Power	Input	Dedicated
61	Volume Airflow Sensor	Spare Speed	Input	PnP for Air Flow Meter
62	Intake Air Temperature Sensor	AIT	Input	PnP for Air Temperature
63	---	Idle #6	Output	Available Switched Gnd, 1.5A Max
64	---	Idle #8	Output	Available Switched Gnd, 1.5A Max
65	A/C Switch 2	Switch #3	Input	PnP for A/C
66	Intercooler Water Spray Auto Switch (European EVO Only)	MAF	Input	Available, 0-5V sensor input
67	Intercooler Water Spray Manual Switch (European EVO Only)	PW #1	Output	Available Switched Gnd, 1.5A Max
68	Ignition Start Switch	Cranking (SW1)	Input	Dedicated

1	2		3	4						5	6		7	8	41	42	43	44							45	46	47	71	72	73	74						75	76	77
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	48	49	50	51	52	53	54	55	56	57	58	59	78	79	80	81	82	83	84	85	86	87	88	89	90
24	25		26	27	28	29	30	31	32	33		34	35		60	61		62	63	64		65	66		67	68	91	92	93		94	95		96	97	98		99	100

Connection Diagram for EMS P/N 30-6320

PnP	Means the Plug and Play system comes with this configured for proper operation of this device. Is still available for reassignment by the end user.
Avail	Means the function is not currently allocated and is available for use
Dedicated	Means the location is fixed and cant be changed

Pin	2006 Mitsubishi Lancer EVO IX	AEM EMS 30-6320	I/O	Notes
71	Front Heated Oxygen Sensor	O2 #1	Input	PnP for Primary O2 Sensor
72	---	EGT #2	Input	Available 0-5V Analog Input
73	Rear Heated Oxygen Sensor	O2 #2	Input	PnP for Secondary O2 Sensor
74	---	EGT #3	Input	Available 0-5V Analog Input
75	Power Ground (European EVO Only)	Power Ground	Input	Dedicated
76	---	Coil #4	Output	Available Switched Gnd, 1.5A Max
77	---	---	---	---
78	Throttle Position Sensor	TPS	Input	PnP for Throttle Position
79	Idle Position Signal	ADCR13	Input	Available 0-5V Analog Input
80	Vehicle Speed Sensor	Switch #2	Input	PnP for Vehicle Speed
81	---	Injector #12	Output	Available Switched Gnd, 1.5A Max
82	---	---	---	---
83	A/C Switch	Switch #6	Input	PnP for A/C Switch
84	---	High Side Driver #2	Output	Available Switched 12V, 1.5A Max
85	Data Link Connector	PCR X	Input	Available Serial Connection
86	---	High Side Driver #3	Output	Available Switched 12V, 1.5A Max
87	---	High Side Driver #4	Output	Available Switched 12V, 1.5A Max
88	Clutch Pedal Position Switch (US EVO Only)	Switch #4	Input	Available Switched Input
89	---	---	---	---
90	Intercooler Water Spray Combination Meter (European EVO Only)	Coil #3	Output	Available Switched Gnd, 1.5A Max
91	Knock Sensor	Knock #1	Input	PnP for Knock Detection
92	Manifold Absolute Pressure Sensor	MAP	Input	PnP for Manifold Pressure
93	Fuel Tank Differential Pressure Sensor	ADCR11	Input	Available 0-5V Analog Input
94	---	PCGND	Input	Available Serial Connection
95	Main Fuel Pump and Level Sensor (US EVO Only)	Knock #2	Input	Available Knock Detection
96	Fuel Tank Temperature Sensor	ADCR14	Input	Available 0-5V Analog Input
97	Sub Fuel Pump and Level Sensor (US EVO Only)	EGT #4	Input	Available 0-5V Analog Input
98	Engine Immobiliser System	---	---	---
99	Ignition Switch	12V Switched	Input	Dedicated
100	Data Link Connector	PCTX	Output	Available Serial Connection

1	2	3	4			5	6	7	8	41	42	43	44			45	46	47	71	72	73	74			75	76	77												
9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	48	49	50	51	52	53	54	55	56	57	58	59	78	79	80	81	82	83	84	85	86	87	88	89	90
24	25	26	27	28	29	30	31	32	33	34	35	60	61	62	63	64	65	66	67	68	91	92	93	94	95	96	97	98	99	100									

30-1320 (Series 1) vs 30-6320 (Series 2) EMS differences:

The EMS functions assigned to certain pins have been changed and no longer match the 30-1320 EMS. Unless otherwise noted, the following pins and functions will need to be manually reconfigured after using AEMTuner to convert a V1.19 (30-1320, Series 1 EMS) calibration for use with the 30-6320 Series 2 hardware.

Pin	EVO IX harness destination	30-1320 function	30-6320 function	Notes
17	---	Injector #9i	Injector 11	Inj11 controlled independently of Inj9
81	---	Injector #10i	Injector 12	Inj12 controlled independently of Inj10
13	---	---	CAN1H	
33	---	---	CAN1L	

AEM Electronics Warranty

Advanced Engine Management Inc. warrants to the consumer that all AEM Electronics products will be free from defects in material and workmanship for a period of twelve months from date of the original purchase. Products that fail within this 12-month warranty period will be repaired or replaced when determined by AEM that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement 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 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.