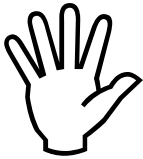




***Installation Instructions for:
EMS P/N 30-1101
1993-1997 Toyota Supra N/A
1993-1997 Lexus SC300/GS300***

Conversion to Speed Density Necessary for this Vehicle**

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.

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Instruction Part Number: 10-1101
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Congratulations! You have just purchased the finest Engine Management system for your car at any price!

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 an all new 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. 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. The AEMPro software is configured to work with the factory sensors and equipment, so that there is no need for expensive or hard to find sensors, making replacement and repairs as simple as with an unmodified car. For stock and some slightly modified cars, the AEMPro software will be preprogrammed with a set of base parameters, providing a starting point for individual tuning. For more heavily modified cars, the EMS has many spare inputs and outputs allowing the elimination of separate rev-limiters, boost controllers, nitrous controllers, and fuel computers. It will also allow programmable control over all automatic transmission functions, and includes a configurable onboard data logger capable of recording 512kb of information. Every EMS comes with all functions installed and activated, and there are no expensive options or upgrades to be performed.

The installation of the AEM ECU on the 1993-1997 Toyota Supra and Lexus GS/SC300 uses the stock sensors and actuators**(N/A cars MUST be converted to Speed Density with the addition of a Map sensor). The base map is automatically installed in the calibrations directory in the AEMPro directory on your computer. It is named 1101.V1.03.CAL.

Full details of the test vehicle used to generate this map can be found in the files notes section. However, while the base map is a good starting point and may save you considerable time and money, it will not replace the need to tune your specific application. It is not intended to be driven aggressively. Ignoring this can and will damage your engine.

The factory Toyota/Lexus traction control is not supported with the AEM EMS. No removal of components or other action is required from the end user. The ignition control is converted to "wasted spark" with 3 drivers controlling the six factory coils. The 30-1101 EMS pin out and connector diagram is at the end of this document .

Please visit the AEM EMS Tech Forum at <http://www.aempower.com> and register. We always post the most current strategy release, PC Software and base calibrations online. On the forum, you will find many helpful hints/tips to make your EMS perform it's best.

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

- 1) Removing the Stock Engine Control Unit**
 - a) Access the stock Engine Control Unit (ECU). The location of the ECU on the Toyota Supra is under the passenger firewall carpet and has a black cover that is removed by 4 10 mm nuts.
 - 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 ECU's 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 it aside. Do not destroy or discard the factory ECU, as it can be reinstalled easily for street use and troubleshooting.
 - d) Make sure any aftermarket electronics are COMPLETELY and properly removed before starting the vehicle.
- 2) **Installation of a pressure sensor for speed density is mandatory for running the supplied base calibration. GM Part #16040749 for a 3 bar pressure sensor. AEM part#30-2112 for 3.5 bar, and 30-2109 for 5bar. We highly recommend the AEM sensors as they are much more accurate than the GM sensors. The 5v reference, and sensor ground can be tapped from the stock MAF Harness(consult your shop manual for wire colors, or use a voltmeter to determine the appropriate wires), the signal will need to go to pin 62B as shown in the plug diagram.**
- 3) Install the AEM Engine Management System.**

- a) Plug the factory wiring harness into the AEM ECU, and position it so that the wires are not pulled tight or stressed. Secure it with the provided Velcro fasteners.
 - b) Plug the comms cable into the EMS and into your PC.
 - c) Turn your ignition on but do not attempt to start the engine.
 - d) Upload the base calibration file (.cal) that most closely matches your vehicle's configuration. (These files can be found in the AEMPro/Calibrations/Toyota folder on your computer's hard drive)
 - e) Set the throttle range: Select the *Configure* drop down menu, then *ECU Setup | Set Throttle Range* and then follow the direction given on the screen.
 - f) Verify the ignition timing by selecting the *Configure* drop down menu, then *ECU Setup | Set Ignition*. Use a timing light and compare the physical timing numbers to the Parameter *Ignition Timing* displayed. Use the *Advance/Retard* buttons to make the timing number match.
- 4)** You are now ready to begin tuning your vehicle.
- a) Note: This calibration needs to be properly tuned and is not recommended for street use. NEVER TUNE YOUR VEHICLE WHILE DRIVING.

Application Notes for EMS P/N 30-1101
1993-1997 Supra/Lexus GS/SC300

Make:	Toyota
Model:	Supra/SC300/GS300
Years Covered:	* 1993-1998
Engine Displacement:	3.0L
Engine Configuration:	I6
Firing Order:	1-5-3-6-2-4
N/A, S/C or T/C:	N/A (93-97)
Load Sensor Type:	MAP
Map Min:	Use sensor wizard
Map Max:	Use sensor wizard
# Coils:	1
Ignition driver type:	0-2.5V Logic
How to hook up a CDI:	Wire after igniter
# Injectors:	6 (Inj 1-6)
Injector Flow Rate:	320 cc/min
Injector Resistance:	13.4-14.2 Ω
Injection Mode:	Sequential
Knock Sensors used:	1 & 2
Lambda Sensors used:	1 & 2
Idle Motor Type:	Stepper
Main Relay Control:	Yes
Crank Pickup Type:	Mag
Crank Teeth/Cycle:	24
Cam Pickup Type:	Mag
Cam Teeth/Cycle:	1
Transmissions Offered:	M/T, A/T
Trans Supported:	M/T, A/T
Drive Options:	RWD

Supplied Connectors:	Spare pins
Spare Injector Drivers:	Inj #10, Pin A11
Spare Injector Drivers:	Inj #7, Pin 70B
Spare Injector Drivers:	---
Spare Injector Drivers:	---
Spare Injector Drivers:	---
Spare Injector Drivers:	---
Spare Coil Drivers:	---
Spare Coil Drivers:	---
Spare Coil Drivers:	---
Spare Coil Drivers:	---
Boost Solenoid:	PW #2, Pin 60B
EGT #1 Location:	Pin 2B
EGT #2 Location:	Pin 4B
EGT #3 Location:	Pin 8B
EGT #4 Location:	Pin 67B
Spare 0-5V Channels:	Ftemp 24B (sp on M/T)
Spare 0-5V Channels:	
Spare 0-5V Channels:	---
Spare Low Side Driver:	Low Side #8, Pin 61B
Spare Low Side Driver:	Low Side #9, Pin 68B
Spare Low Side Driver:	Low Side #11, Pin 59B
Spare Low Side Driver:	
Check Engine Light:	Low Side #10, Pin 6A
Spare Switch Input:	Switch #6, Pin 22B
Spare Switch Input:	Switch #2, Pin 23B
A/C Switch Input:	PR Press, Pin 34A
Clutch Switch Input:	Wire with relay

Notes:

Installation notes for 30-1101 ECU

If using low impedance injectors, a ballast resistor must be used. The 93-98 Supra Turbocharged vehicles come with one of these from the factory, the factory part can be used in this case.

Caution!!!!!!!

The Mass air flow sensor is not used as the load input for calibration from AEM. The base calibration was made on a 5 bar pressure sensor, and is pressure compensated for fuel, so if you are NOT using a 5 bar pressure sensor, you will need to go into advanced fuel/ fuel trims/ boost fuel correct, and make the appropriate changes. Example, if you are using a 3.5 bar AEM pressure sensor, then you need to change the 35psi line to correct for 250% and then calculate that back to the -14.7/-100% point. This is a linear correction, so your line should be straight, and cross at the zero psi line.

Auto Transmission Operation

The Wide open throttle shift RPM is based upon when the ECU sends the command to perform the gear change, this DOES NOT mean it will shift at that exact RPM due to mechanical response times for the hydraulic fluid to affect the change. You will have to determine the response time for your transmission by observing the engine speed vs. shift event in AEMLog and adjusting the shift point to occur before the engine reaches maximum rated engine speed.

Connection Diagram for EMS P/N 30-1101

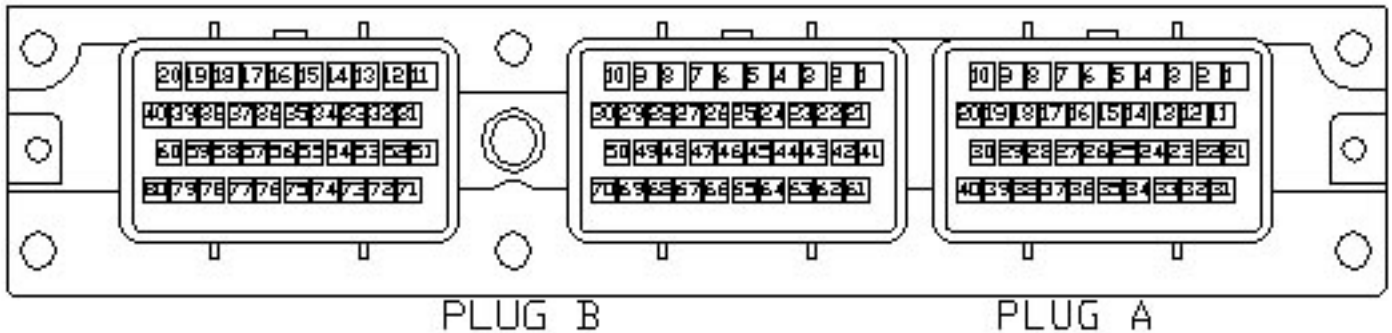
1993-1997 Toyota/Lexus 2JZ N/A

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

Pin #	93-97 Toyota 2JZGE	AEM P/N 30-1100 Name	I/O	Availability
1A	Switched 12v at key on	SWITCHED 12V	Input	Dedicated
2A	Vehicle Speed Sensor	Vehicle Speed	Input	Dedicated
3A	Kickdown switch (Not Used)	N/U	N/U	Not used
4A	Brake switch input (12V) Not Used	N/U	N/U	Not used
5A	NOT USED	N/U	N/U	Not used
6A	Malfunction Indicator Lamp	LS10	Output	PNP for Check Engine light
7A	Reverse indicator input	GEAR	Input	PNP reverse input
8A	HS1 Output	HS1	Output	Available +12v switched
9A	2nd gear indicator input	GEAR	Input	PNP 2nd gear indicator
10A	1st gear indicator input	GEAR	Input	PNP 1st gear indicator
11A	NOT USED	N/U	N/U	Not used
12A	NOT USED	N/U	N/U	Not used
13A	NOT USED	N/U	N/U	Not used
14A	NOT USED	N/U	N/U	Not used
15A	NOT USED	N/U	N/U	Not used
16A	CLIMATE CONTROL	LS7	Output	PNP for climate control
17A	TT For DATALINK connector	INJECTOR 10I	Output	available injector 10
18A	Manual trans mode selector switch	Switch #5	Input	Manual trans mode (auto only)
19A	DATALINK	INJECTOR 9I	Output	available injector 9
20A	DATALINK	PW 1	Output	available pw1
21A	NOT USED	N/U	N/U	Not used
22A	Fuel pump control	FM	Output	PNP fuel pump activation
23A	ACMG to A/C Magnetic clutch	LS6	Output	PNP A/C compressor relay
24A	Activates Main Relay at key on	COIL 5	Output	Dedicated Main relay
25A	Manual indicator mode light A/T only	N/U	Output	PNP manual mode indicator
26A	NOT USED	N/U	N/U	Not used
27A	NOT USED	N/U	N/U	Not used
28A	Over Drive Switch input	Switch #4	Input	PNP Overdrive input
29A	NOT USED	N/U	N/U	Not used
30A	HS2	HS2	Output	Available +12v switched
31A	Switched 12v from Main Relay	Switched 12v power	Input	Dedicated
32A	NOT USED	N/U	N/U	Not used
33A	12V constant battery	12V CONSTANT	Input	Dedicated
34A	A/C to a/c amplifier	Switch # 6	Input	PNP input for a/c request
35A	NOT USED	N/U	N/U	Not used
36A	NOT USED	N/U	N/U	Not used
37A	NOT USED	PW2	N/U	Not used
38A	NOT USED	N/U	N/U	Not used
39A	NOT USED	N/U	N/U	Not used
40A	NOT USED	N/U	N/U	Not used
1B	Timing (speed sensor) ground	TGND	Output	Dedicated

2B	EGT # 1 (+) (ADR 17)	EGT #1	Input	Available EGT input
3B	SP2 - Timed Speed input ground	TGND	Output	Dedicated
4B	EGT # 2 (+) (ADR18)	EGT #2	Input	Available EGT input
5B	Cam Sensor 2 (G2) Ground	TGND	Output	Not used
6B	Cam Sensor 1 (G1) Ground	TGND	Output	Dedicated
7B	Crank Sensor (NE) Ground	TGND	Output	Dedicated
8B	EGT # 3 (+) (ADR15)	EGT #3	Input	Available EGT input
9B	Auto Trans Sol No2 (HS3)S2	HS3	Output	PNP Auto Trans sol #2
10B	Auto Trans Sol No1 (HS4)S1	HS4	Output	PNP Auto Trans sol #1
11B	O2 Sensor ground	oxgnd2	Output	Dedicated
12B	A/T Sol 5 (Line Pressure)	IDLE7	Output	PNP Auto line pressure
13B	A/T Sol 4 (Engagement Speed)	INJECTOR 8	Output	PNP Auto gear engagement
14B	A/T Sol 3 (Converter Lock up)	IDLE5	Output	PNP Auto Converter Lockup
15B	Injector 6	INJECTOR 6	Output	Dedicated
16B	Injector 5	INJECTOR 5	Output	Dedicated
17B	Injector 4	INJECTOR 4	Output	Dedicated
18B	Injector 3	INJECTOR 3	Output	Dedicated
19B	Injector 2	INJECTOR 2	Output	Dedicated
20B	Injector 1	INJECTOR 1	Output	Dedicated
21B	Input Shaft Speed sensor signal	Switch #2	Input	Available Switch input
22B		N/U	Input	
23B	Tail Shaft Speed sensor (Switch #3)	Switch #3	Input	Available Switch input
24B	Auto Trans Fluid Temp	FTEMP	Input	PNP trans temp sensor
25B	Cam Sensor 2 (G2) Input	N/U	Input	
26B	Cam Sensor 1 (G1) input	CAM	Input	Dedicated
27B	Crank Sensor (NE) input	CRANK	Input	Dedicated
28B	Sensor Ground	SENSOR GROUND	Output	Dedicated
29B	DATALINK	Pw1outi	Output	Available Pulse width
30B	NOT USED	N/U	N/U	Not used
31B	Auto Trans Sol No5 (SLT+) (Idle 8)	IDLE8	Output	PNP Auto trans line pressure
32B	Idle 4	IDLE4	Output	PNP Idle control motor
33B	Idle 1	IDLE1	Output	PNP Idle control motor
34B	Idle 3	IDLE3	Output	PNP Idle control motor
35B	Idle 2	IDLE2	Output	PNP Idle control motor
36B	NOT USED	N/U	N/U	Not used
37B	Not available on automatic	IDLE 6	Output	Available idle driver
38B	Not Used	LS4	Output	Switched Ground 1.5a max
39B	Not Used	LS5	Output	Switched Ground 1.5a max
40B	Not Used	LS3	Output	Switched Ground 1.5a max
41B	5V Reference	5V REFERENCE	Output	Dedicated
42B	NOT USED	N/U	N/U	Not used
43B	TPS signal input	TPS	Input	Dedicated
44B	Coolant Sensor Input	COOLANT	Input	Dedicated
45B	Air Temp Sensor (ADR6)	Air Temp	Input	Dedicated
46B	NOT USED	N/U	N/U	Not used
47B	AFR#1	LAMBDA1	Input	Dedicated
48B	AFR#2	LAMBDA2	Input	Dedicated
49B	Knock 2 input (Rear Knock Sensor)	KNOCK2	Input	Dedicated
50B	Knock 1 input (Front Knock Sensor)	KNOCK1	Input	Dedicated
51B	NOT USED	N/U	N/U	Not used
52B	Ignitor 6	COIL1	Output	Dedicated
53B	Not Used	COIL2	Output	N/A

54B	Not Used	COIL3	Output	N/A
55B	Not Used	COIL3	Output	N/A
56B	Not Used	COIL2	Output	N/A
57B	Not Used	COIL1	Output	N/A
58B	NOT USED	N/U	N/U	Not used
59B	LS11	LS11	Output	Switched Ground 1.5amp max
60B	Not Used	PW2OUT	Output	Available Boost control
61B	LS8	LS8	Output	Switched Ground 1.5amp max
62B	Map Sensor Input	MAP	Input	Wire Pressure sensor here!
63B	NOT USED	N/U	N/U	Not used
64B	NOT USED	N/U	N/U	Not used
65B	Sensor Ground	SENSOR GROUND	Output	Dedicated
66B	Karmon Vortex VAF	Spare Speed	Input	VMAF/or speed sensor input
67B	EGT 4 (+) (ADR16)	EGT #4	Input	Available EGT
68B	LS9	LS9	Output	Switched Ground 1.5amp max
69B	Chassis Ground	RTN	Output	Dedicated
70B	Injector 7	INJECTOR 7	Output	Inj driver 1.5 amp max
71B	Ox 1 Heater Ground	LS12	Output	PNP O2#1 Heater
72B	Ox 2 Heater Ground	LS2	Output	PNP O2#2 Heater
73B	Fuel Pressure up VSV	LS1	Output	PNP fuel pressure up VSV
74B	EVAP or Secondary injector	INJECTOR 9	Output	PNP for EVAP control
75B	EGR	INJECTOR 10	Output	PNP for EGR control
76B	Neutral Starting switch (ADR13)	Gear	Input	PNP for Neutral indicator
77B	NOT USED	N/U	N/U	Not used
78B	Ground	RTN	Output	Dedicated
79B	Chassis Ground	RTN	Output	Dedicated
80B	Chassis Ground	RTN	Output	Dedicated



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.