

# Instruction Manual



## 30-6030 Series 2 Plug & Play EMS 2002–2004 Acura RSX K20A2 and K20A3 2002–2004 Honda CR-V K24A1



### **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

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 each 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\Honda-Acura\

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.aemelectronics.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.

## INSTALLATION

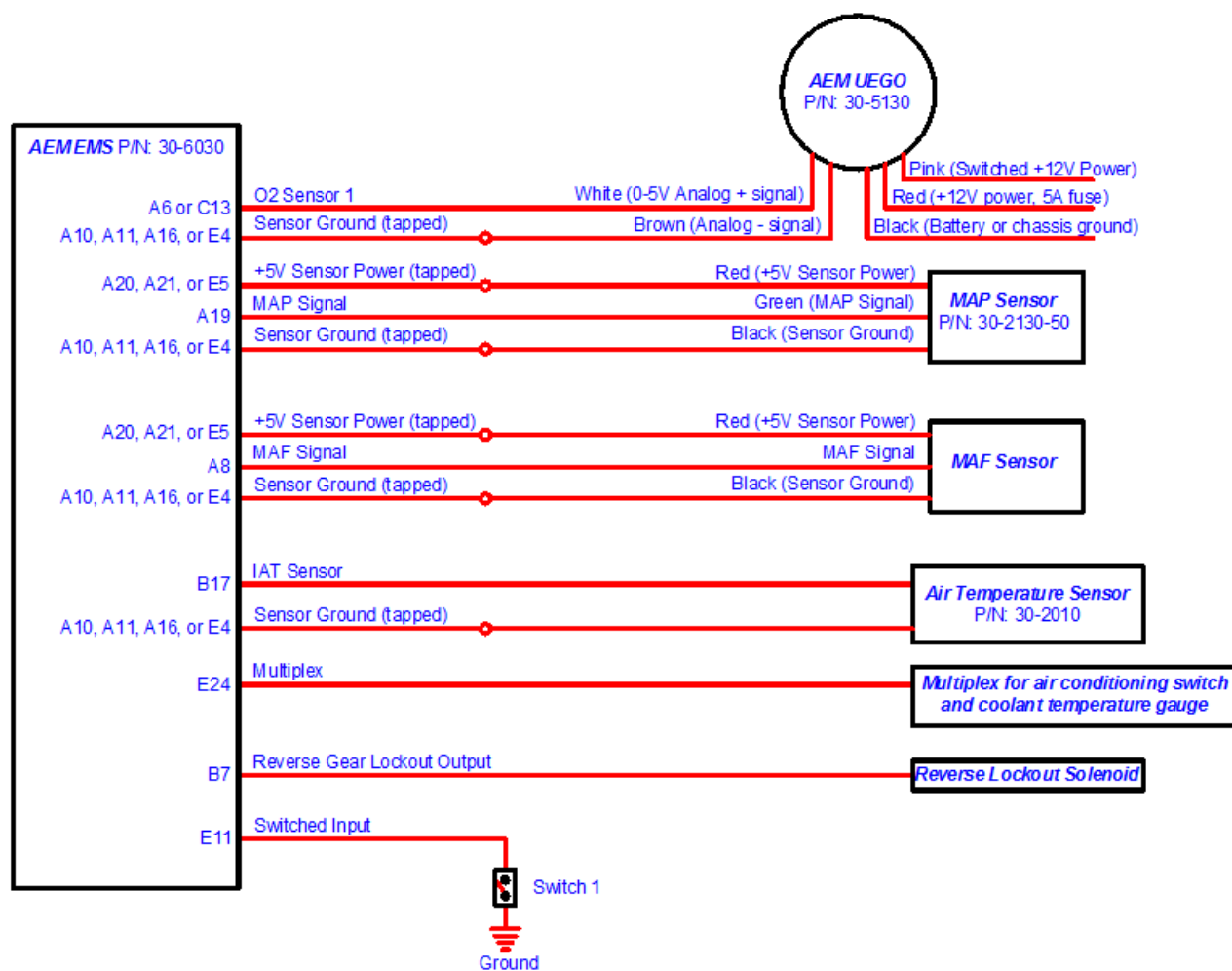
### 30-1030 (Series 1) vs 30-6030 (Series 2) EMS Differences to install this product.\*\*

The EMS functions assigned to certain pins have been changed and do not match the 30-1030 EMS. Unless otherwise noted, the following pins and functions will need to be manually reconfigured after using AEMTuner to convert a V1.19 30-1030, Series 1 EMS calibration for use with the 30-6030 Series 2 hardware.

Pin	Vehicle Harness Destination	30-1030 Function	30-6030 Function	Notes
A27	Ignition coil 4	Coil 5	Coil 4	Changed in startup calibration
C21	---	Injector 9i	CAN1H	Changed to CAN high side
C22	---	Injector 10i	CAN1L	Changed to CAN low side
D1-D17	---	Stock ECU Multiplex control	---	30-6030 EMS does not require stock ECU piggyback for multiplex
E13	---	FM	Coil 6	
E24	Instrument cluster multiplex	---	Multiplex	6030 EMS now controls multiplex

## Wiring Accessories to the EMS

Please follow this suggested wiring diagram when adding new accessories and retaining original accessories such as the multiplex coolant temperature gauge, air conditioning switch, reverse lockout, 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.



## Variable Valve Control (VVC)

The VTEC output (pin B15, High Side 1 output on the EMS) switches from the low-lift camshaft lobes to the high-lift camshaft lobes, similar to traditional Honda B-series engines. This is controlled by the HS1 output (VTEC function) in the EMS, and can be adjusted in the **Tools>>Configure Outputs** settings.

The i-VTEC output (pin B23, Injector 10 output on the EMS) advances the phase angle of the intake camshaft; this will have effects similar to moving an adjustable intake cam gear. This is controlled by the VVC 1 output; VVC position is monitored using the T3 input for closed-loop feedback. The VVC settings can be adjusted in the VVC tab (which may be hidden in the default AEM workspace).

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' map. 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 degrees for zero intake cam advance to 50 degrees for full intake cam advance.

Please note that the VVC Target angle for best power output will depend on the VTEC settings, and vice-versa. If VTEC settings are adjusted it would be wise to adjust the VVC Target map as well to ensure best power at all engine speeds.

**WARNING: Improper use of the Variable Valve Control (VVC) in the AEMTuner software can lead to engine failure with certain setups!**

**Be very careful when building or tuning 'hybrid' engine combinations or using aftermarket engine internals. OEM engines and camshafts are designed and manufactured in such a way that the intake valves cannot be crashed into the pistons or exhaust valves regardless of VVC advance angle and/or VTEC settings. It is NOT recommended to build setups that will allow the intake valves to be crashed into the pistons or exhaust valves by adjusting settings in the EMS!**

## Check Engine Light

The Low Side 10 output (LS10) activates the Check Engine Light on the gauge cluster. It is configured to activate at high RPM in the AEM startup calibrations; this can be reconfigured by selecting **Tools>>Configure Outputs**.

## Internal Logging

Since these vehicles do not have a constant 12V wire in the factory ECU harness, a permanent 12V wire must be installed at Pin C1 for the Internal Log Memory. The pins and connector in this kit can be used.

Note: PC Logging can still be used to record data from the EMS while the laptop is connected to the vehicle; it does not require power at pin C1.

## Honda Multiplex Control

The supported vehicles utilize a Multiplex system which communicates with many of the vehicle's control modules. The 30-6030 Series 2 EMS is different than the 30-1030 Series 1 EMS since it does not require the stock ECU to be installed for the coolant temperature gauge and air conditioning switch to function.

If the AEM 30-6030 EMS is being installed into a different vehicle which does not use the 2001–2005 Honda Multiplex system, there is no action required in either the software or the hardware.

Note: When using the 30-6030 EMS, always use the 30-6030 specific Coolant Temp Wizard calibration. (This has been configured in all 6030 startup calibrations.)

## EMS Fuel Map & Boost Fuel Trim Table

The 30-6030 calibration maps provided utilize the "*Boost Fuel Trim Table*" to provide a 1:1 fuel compensation above and below atmospheric pressure. To use this table, the *Boost Fuel Trim Table* should be 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.

## Engine Wiring Harnesses & 'Swapped' Engine Installations

It would be very wise to double-check that the vehicle's wiring harness destinations match the pinout chart provided in this document. This is especially true if the vehicle contains a 'swapped' engine or if the wiring harness has been cut, spliced, soldered, tapped, or modified in any manner. It is the user's responsibility to check that the wiring on the vehicle matches the pinout chart in this document. AEM will not be held responsible for loss or damage that can occur if the EMS is installed in a vehicle in which the wiring harness does not match the AEM-supplied pinout chart!

## Step 1

### Install AEMTuner Software onto your PC

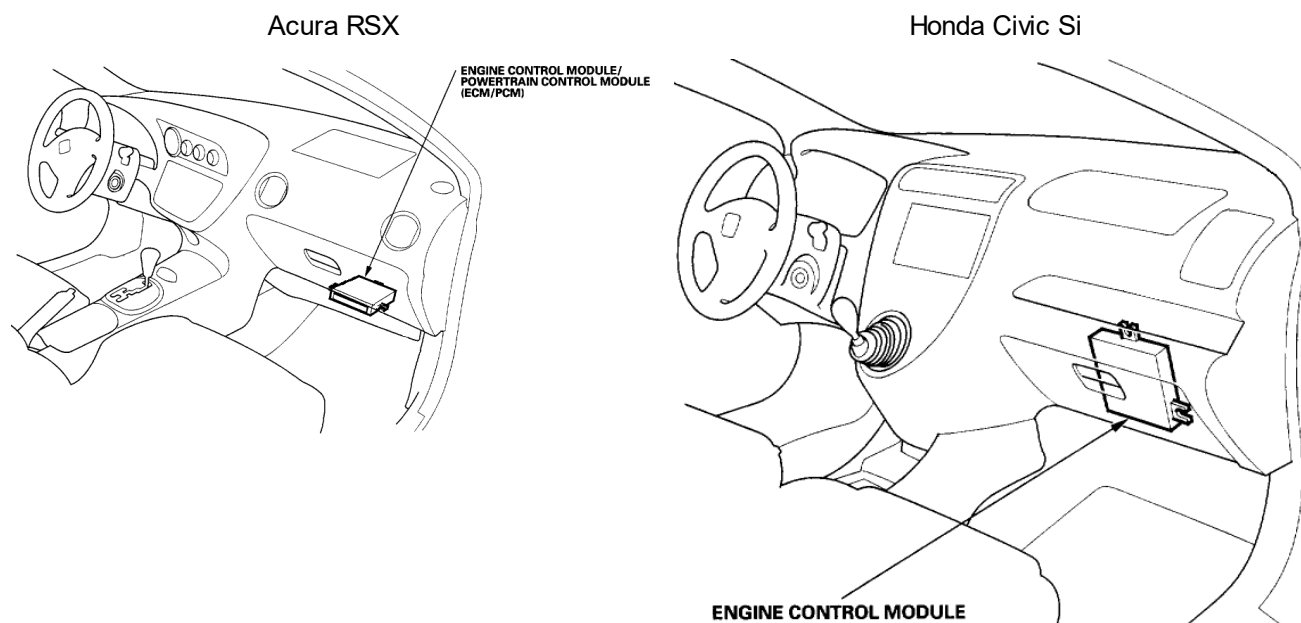
The latest version of the AEMTuner software can be downloaded from: [www.aemelectronics.com/products/support](http://www.aemelectronics.com/products/support)

Series 2 units are not supported by the older AEMPro tuning software.

## Step 2

### Remove the Stock Engine Control Unit

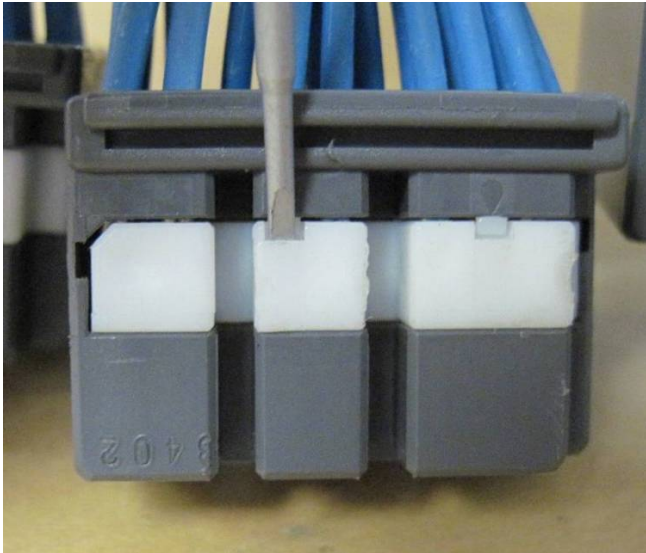
- a) Disconnect negative terminal from battery.
- b) Access the stock Engine Control Unit (ECU). The location of the ECU on the Acura RSX, Honda Civic, and Honda CR-V vehicles is on the passenger side of the vehicle behind the glove box.



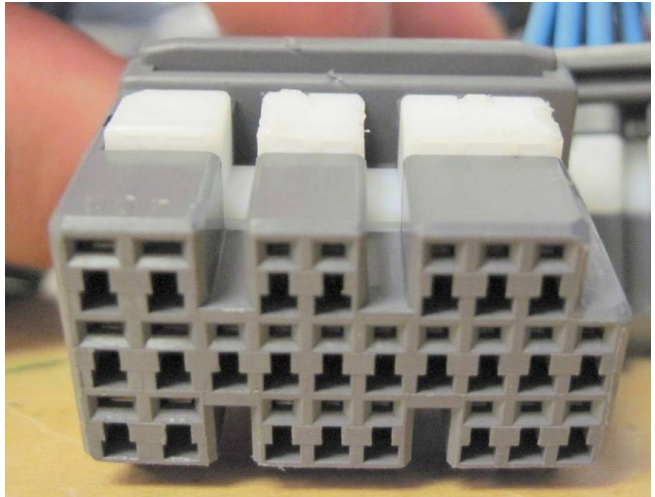
- c) Carefully disconnect the wiring harness from the ECU. Avoid excessive stress or pulling on the wires, as this may damage the wiring harness. All connectors must be removed without damage to work properly with the AEM ECU. Do not cut any of the wires in the factory wiring harness to remove them.
- d) Remove the fasteners securing the ECU to the car body, and set them aside. Do not destroy or discard the original ECU, as it can be reinstalled easily for street use and troubleshooting.

**Step 3****Repin ECU Pins (Only Necessary if Adding or Relocating ECU Pins)**

- a) Locate a small screwdriver (a precision 1.5mm wide flathead screwdriver is recommended) and carefully pry white plastic retainer using both slots in the retainer so it disengages vertically about 1mm, as shown in the following pictures.

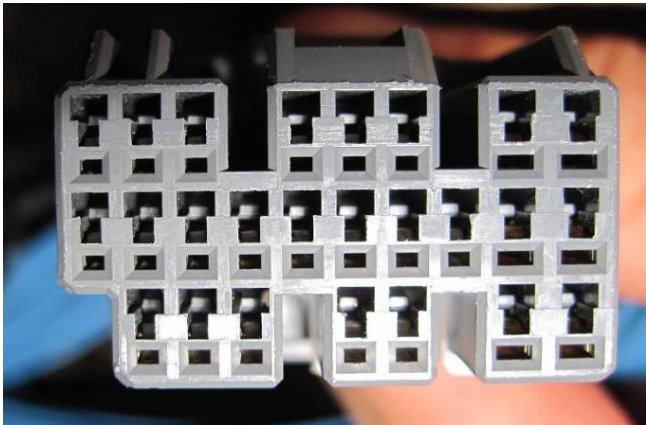


Screwdriver lifts here.

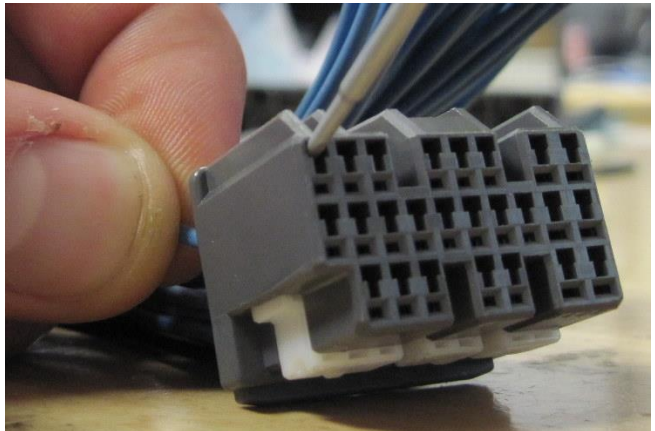


Plastic retaining mechanism after lifting

- b) Next remove the metal pin from the plastic connector by lightly prying on the plastic tabs that secure the metal pin in the plastic connector while pulling on the wire at the same time, as shown below.



Pry this tab up to release the pin.



While prying tab up, gently pull pin back.

## Step 4

### Install the AEM Engine Management System

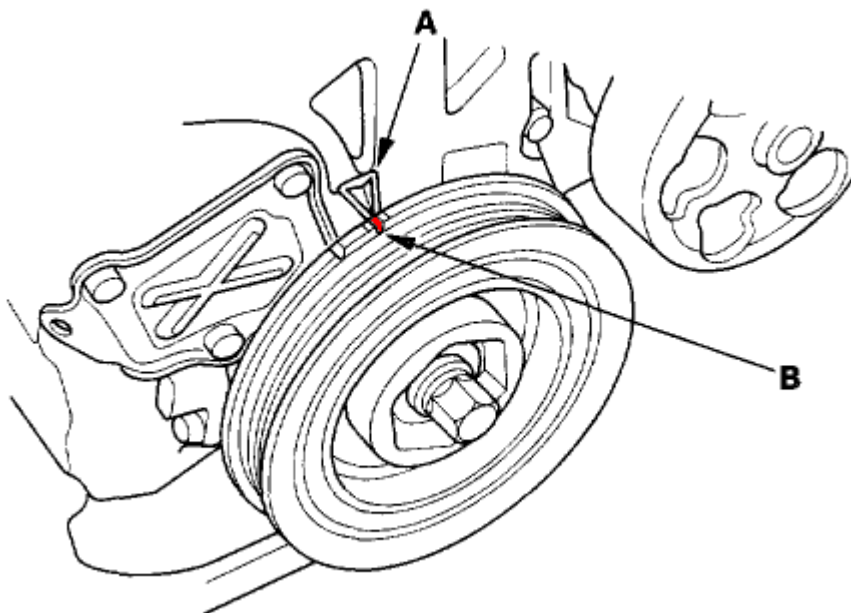
- a) Plug the factory wiring harness into the AEM EMS and position it so the wires are not pulled tight or stressed in any manner. Secure the EMS with the provided Velcro fasteners.
- b) Reconnect the negative battery terminal.
- c) Plug the communications cable into the EMS and into your PC.
- d) Turn the ignition on, but do not attempt to start the engine.
- e) At the time these instructions were written, new EMS units do not require USB drivers to be installed on the PC. The EMS will automatically be detected as a human interface device (HID).
- f) 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\Honda - Acura\*
- g) 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.



## Step 5

### 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 to 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. Crankshaft timing marks are not labeled for some vehicles. Consult the factory service manual for more information. The diagram below shows labels for the original timing marks. "A" points to the timing indicator and "B" points to the red mark that is located 8° before top dead center.
- 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 A VEHICLE WHILE DRIVING**

## Step 6

### 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, or spark using a timing light or by removing the spark plug, perform wiring continuity tests, measure ECU pinout voltages, or 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.

### Sufficient Battery Voltage During Cranking (Starting)

Having enough battery voltage when you crank over your vehicle is critical to the operation of your vehicle and your AEM EMS. For the EMS to function properly, the battery voltage must remain at or above 8 Volts when the vehicle is first starting. This is the time when your electrical system will be worked its hardest and be at its lowest voltage. If you are connected to your Series 2 EMS with a USB communications cable, and you experience disconnecting while the vehicle is cranking, the reason may be a battery voltage of less than 8 volts. If this is the case, you can confirm this by connecting with a serial cable (a serial adapter may be required if your computer is not equipped with a serial port) and check in the AEMTuner software for a channel called "Run Time". "Run Time" is the amount of time, in seconds, that the EMS has been turned on for. If you notice that this channel goes to zero while the EMS is communicating with the computer and the vehicle is being cranked, that means the EMS has had lower than 8 Volts at some point and has reset the system. A thorough wiring check may reveal a large voltage drop causing this problem, or it may simply be the need for a new or a larger battery.

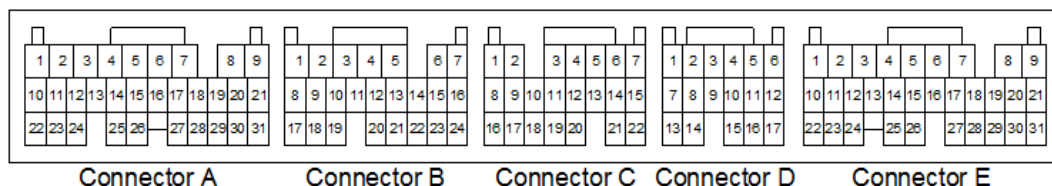
## APPLICATION NOTES

For K20A2, K20A3, K24A1, D17A1, D17A2, D17A6

<b>Make:</b>	Acura/Honda
<b>Model:</b>	Civic, Civic SI, RSX, CR-V
<b>Years Covered:</b>	2001-2005
<b>Engine Displacement:</b>	1.7L, 2.0L, 2.4L
<b>Engine Configuration:</b>	Inline 4
<b>Firing Order:</b>	1-3-4-2
<b>N/A, S/C or T/C:</b>	N/A
<b>Load Sensor Type:</b>	MAP
<b>MAP Min:</b>	0.32V @ -13.9 psi
<b>MAP Max:</b>	4.84V @ 10.94 psi
<b># Coils:</b>	4
<b>Ignition driver type:</b>	0-5V Falling Edge trigger
<b># of Injectors:</b>	4 (Inj 1-4)
<b>Factory Injectors:</b>	215cc-330cc saturated
<b>Factory Inj Resistors:</b>	No
<b>Injection Mode:</b>	Sequential
<b>Knock Sensors used:</b>	1 (Knock 1)
<b>Lambda Sensors used:</b>	1 (O2 # 1, wideband sensor required, original O2 sensor not supported)
<b>Idle Motor Type:</b>	Duty-controlled solenoid PW 1
<b>Main Relay Control:</b>	Yes (hardware controlled)
<b>Crank Pickup Type:</b>	Hall Effect
<b>Crank Teeth/Cycle:</b>	24 + 2
<b>Cam Pickup Type:</b>	Hall Effect
<b>Cam Teeth/Cycle:</b>	4 + 1
<b>Transmissions Offered:</b>	Manual/Automatic
<b>Trans Supported:</b>	Manual
<b>Drive Options:</b>	FWD and AWD
<b>Supplied Connectors:</b>	Plug C with connectors
<b>AEM Extension/patch harness</b>	30-2986 or 30-2986CD
<b>AEM Plug/pin kit:</b>	N/A

Description	Function	ECU Pin #
Spare Injector Drivers:	Injector 8	B7 and C5
Spare Injector Drivers:	Injector 5	B14 and C2
Spare Injector Drivers:	Injector 6	B16 and C3
Spare Injector Drivers:	Injector 7	B18 and C4
Spare Injector Drivers:	Injector 10	B23 and C6
Spare Injector Drivers:	Injector 9	E21 and C7
Spare Coil Drivers:	Coil 6	E13
Boost Solenoid:	PW 2	E10 and C12
Spare PWM Freq Driver (PW 1 inverted):	PW 1i	C19
Spare PWM Freq Driver (PW 2 inverted):	PW 2i	C20
EGT 1 Location:	EGT 1	B10 and C8
EGT 2 Location:	EGT 2	B11 and C9
EGT 3 Location:	EGT 3	B12 and C10
EGT 4 Location:	EGT 4	B13 and C11
Spare 0-5V Input Channel:	ADCR 13	E14
Spare 0-5V Input Channel:	ADCR 11	E15
Spare 0-5V Input Channel:	ADCR 14	E29
Spare Low Side Output Driver:	Low side 1	A1
Spare Low Side Output Driver:	Low side 5	B20
Spare Low Side Output Driver:	Low side 4	B21
Spare Low Side Output Driver:	Low side 12	E6
Spare Low Side Output Driver:	Low side 2	E8
Spare Low Side Output Driver:	Low side 6	E18
Spare Low Side Output Driver:	Low side 9	E20
Spare Low Side Output Driver:	Idle 1	A14
Spare Low Side Output Driver:	Idle 3	B19
Spare Low Side Output Driver:	Idle 5	E17
Spare Low Side Output Driver:	Idle 7	E25
Check Engine Light:	Low side 10	E31
Spare High Side Driver:	High side 2	A22
Spare High Side Driver:	High side 4	E28
Spare High Side Driver:	Idle 2	A17
Spare High Side Driver:	Idle 8	A31
Spare High Side Driver:	Idle 4	B24
Spare High Side Driver:	Idle 6	E19
VVC High Side Driver:	High side 3	B1
VTEC High Side Driver:	High side 1	B15
Spare Switch Input:	Switch 1	E11 and C15
Spare Switch Input:	Switch 2	E12 and C16
Spare Switch Input:	Switch 5	E16
Spare Switch Input:	Switch 6	E22
Spare Switch Input:	Switch 3	C17
VTEC Switch Input:	Switch 4	B9

\*\*\* Important: Wire View of AEM EMS. Reference diagram below for pin location. \*\*\*



**WARNING:**

\*All 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.

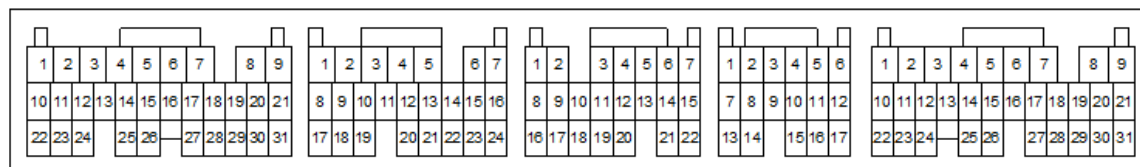
## PINOUTS

PnP	Plug and Play system comes with this pin configured for proper operation of this device, though it is still available for reassignment by the end user.
Available	Pin is not currently allocated and is available for use.
Dedicated	Pin assignment is fixed and cannot be changed.
Not used	AEM EMS does not use this pin location for this application.

## Connector A

Pin	2002–2004 Acura RSX K20A2, K20A3 2002–2004 Honda CRV K24A1 2001–2005 Honda Civic D17, Civic Si K20A3	Wire color	AEM EMS 30-6030	EMS I/O	EMS pin description
A1	Primary O2 sensor heater control	Black/White (Green for D17A6)	Low Side 1	Output	Available, switched ground, 1.5A max
A2	Ignition Power 2	Yellow/Black	Ignition Power	Input	Dedicated, +12V power for EMS
A3	Ignition Power 1	Yellow/Black	Ignition Power	Input	Dedicated, +12V power for EMS
A4	Power Ground 2	Black	Power Ground	Input	Dedicated, ground for EMS
A5	Power Ground 1	Black	Power Ground	Input	Dedicated, ground for EMS
A6	Primary O2 sensor signal	Red (White for D17A1, D17A2)	O2 #1	Input	Available, 0–5V O2 sensor #1 (connected to C13)
A7	Crankshaft position sensor	Blue	Crank (T1)	Input	Dedicated, crank position sensor (T1)
A8	Intake manifold runner control sensor (2002–2004 RSX K20A3 and 2002–2004 CRV K24A1 only)	Red/Yellow (K20A3/K24A1) (Yellow for D17)	MAF	Input	Available, 0–5V mass airflow sensor
A9	Knock sensor	Red/Blue	Knock 1	Input	PnP for knock sensor
A10	Sensor ground 2	Green/Yellow	Sensor Ground	Output	Dedicated, sensor ground
A11	Sensor ground 1	Green/White	Sensor Ground	Output	Dedicated, sensor ground
A12	Idle air control valve	Black/Red	PW 1	Output	PnP for idle air control valve
A13	EGR valve position sensor (2001–2005 Civic D17A2/D17A6 only)	White/Black	Knock 2	Input	Available, knock sensor 2
A14	Secondary O2 sensor heater control (2001–2005 Civic D17A1/D17A6 only)	Black/White	---	---	---
A15	Throttle position sensor	Red/Black	TPS	Input	PnP for throttle position sensor
A16	Primary O2 sensor ground	Red/Yellow	Sensor Ground	Output	Dedicated, sensor ground
A17	---	---	Idle 2	Output	Available, switched +12V power, 1.5A max
A18	Vehicle speed sensor	White/Green	Spare Speed (T4)	Input	PnP for vehicle speed sensor
A19	Manifold absolute pressure sensor	Green/Red	MAP	Input	PnP for manifold absolute pressure sensor
A20	+5V sensor power 2	Yellow/Blue	+5V Sensor	Output	Dedicated, +5V sensor power
A21	+5V sensor power 1	Yellow/Red	+5V Sensor	Output	Dedicated, +5V sensor power
A22	O2 sensor heater control	White	High Side 2	Output	Available, switched +12V power, 1.5A max
A23	Logic ground 2	Brown/Yellow	Power Ground	Input	Dedicated, ground for EMS
A24	Logic ground 1	Brown/Yellow	Power Ground	Input	Dedicated, ground for EMS
A25	Camshaft position sensor A (K-series) Secondary O2 sensor heater (2001–2005 Honda Civic D17A1/D17A6 only)	Blue/White (White/Red for D17)	Vehicle Speed (T3)	Input	Available, 0–5V vehicle speed sensor
A26	Camshaft position sensor B	Green	Cam (T2)	Input	Dedicated, camshaft position sensor (T2)
A27	Ignition pulse no. 4	Brown	Coil 4	Output	PnP for coil 4
A28	Ignition pulse no. 3	White/Blue	Coil 3	Output	PnP for coil 3
A29	Ignition pulse no. 2	Blue/Red	Coil 2	Output	PnP for coil 2
A30	Ignition pulse no. 1	Yellow/Green	Coil 1	Output	PnP for coil 1
A31	---	---	Idle 8	Output	Available, switched +12V power, 1.5A max

\*\*\* Important: Wire View of AEM EMS. Reference diagram below for pin location. \*\*\*



Connector A

Connector B

Connector C

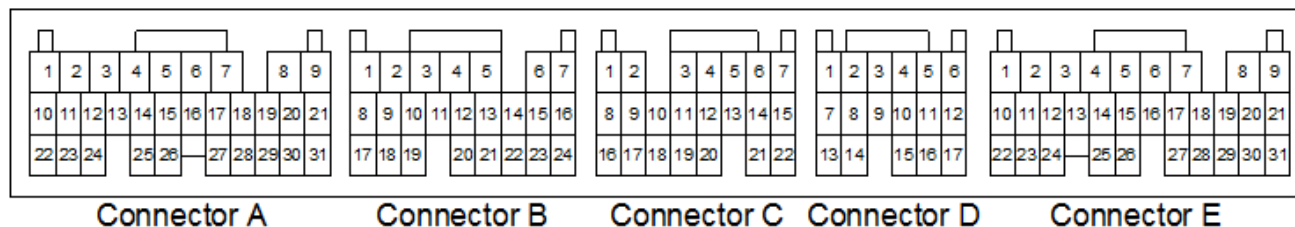
Connector D

Connector E

## Connector B

Pin	2002–2004 Acura RSX K20A2, K20A3 2002–2004 Honda CRV K24A1 2001–2005 Honda Civic D17, Civic Si K20A3	Wire color	AEM EMS 30-6030	EMS I/O	EMS pin description
B1	VTC oil control solenoid valve high side (except 2001–2005 Honda Civic D17A1/2/6)	Blue/White	High Side 3	Output	PnP for VTC solenoid (Variable Valve Timing control)
B2	No. 4 Injector	Yellow	Injector 4	Output	PnP for Injector 4
B3	No. 3 Injector	Blue	Injector 3	Output	PnP for Injector 3
B4	No. 2 Injector	Red	Injector 2	Output	PnP for Injector 2
B5	No. 1 Injector	Brown	Injector 1	Output	PnP for Injector 1
B6	Radiator Fan control relay	Green	Low Side 8	Output	PnP for Radiator Fan control
B7	Reverse lock solenoid valve (2002–2004 Acura RSX K20A2/3 and 2001–2005 Honda Civic Si K20A3 only)	Green	Injector 8	Output	Available, switched ground, 1.5A max (connected to C5)
B8	Engine coolant temperature sensor	Red/White	Coolant	Input	PnP for coolant temperature sensor
B9	VTEC oil pressure switch (except 2001–2005 Honda Civic D17A1)	Blue/Black	Switch 4	Input	PnP for VTEC oil pressure switch
B10	Alternator L signal	White/Blue	EGT 1	Input	Available, jumper set for 0–5V input (connected to C8)
B11	---	---	EGT 2	Input	Available, jumper set for 0–5V input (connected to C9)
B12	---	---	EGT 3	Input	Available, jumper set for 0–5V input (connected to C10)
B13	Alternator F signal	White/Red	EGT 4	Input	Available, jumper set for 0–5V input (connected to C11)
B14	EGR valve control (2001–2005 Honda Civic D17A2/6 only)	Blue/Red	Injector 5	Output	Available, switched ground, 1.5A max (connected to C2)
B15	VTEC solenoid valve (except Civic D17A1)	Green/Yellow	High Side 1	Output	PnP for VTEC solenoid valve activation
B16	---	---	Injector 6	Output	Available, switched ground, 1.5A max (connected to C3)
B17	Intake air temperature sensor	Red/Yellow	AIT	Input	PnP for intake air temperature sensor
B18	Alternator C control	White/Green	Injector 7	Output	Available, switched ground, 1.5A max (connected to C4)
B19	---	---	Idle 3	Output	Available, switched ground, 1.5A max
B20	---	---	Low Side 5	Output	Available, switched ground, 1.5A max
B21	Evaporative emission canister purge valve	Yellow/Blue	Low Side 4	Output	Available, switched ground, 1.5A max
B22	Intake manifold runner control valve (2002–2004 Acura RSX/Honda CR-V only)	Red/Blue	Low Side 3	Output	PnP for intake manifold runner control valve
B23	VTC oil control solenoid valve low side (except 2001–2005 Honda Civic D17A1/2/6)	Black/White	Injector 10	Output	PnP for VTC solenoid (variable valve timing control, connected to C6)
B24	---	---	Idle 4	Output	Available, switched +12V power, 1.5A max

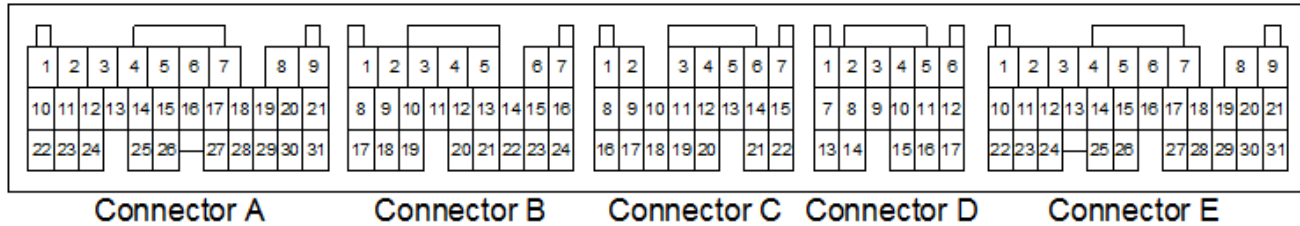
\*\*\* Important: Wire View of AEM EMS. Reference diagram below for pin location. \*\*\*



### Connector C

Pin	2002–2004 Acura RSX K20A2, K20A3 2002–2004 Honda CRV K24A1 2001–2005 Honda Civic D17, Civic Si K20A3	Wire color	AEM EMS 30-6030	EMS I/O	EMS pin description
C1	---	---	Permanent +12V	Input	Dedicated, permanent +12V power
C2	---	---	Injector 5	Output	Available, switched ground, 1.5A max (connected to B14)
C3	---	---	Injector 6	Output	Available, switched ground, 1.5A max (connected to B16)
C4	---	---	Injector 7	Output	Available, switched ground, 1.5A max (connected to B18)
C5	---	---	Injector 8	Output	Available, switched ground, 1.5A max (connected to B7)
C6	---	---	Injector 10	Output	Available, switched ground, 1.5A max (connected to B23)
C7	---	---	Injector 9	Output	Available, switched ground, 1.5A max (connected to E21)
C8	---	---	EGT 1	Input	Available, jumper set for 0–5V input (connected to B10)
C9	---	---	EGT 2	Input	Available, jumper set for 0–5V input (connected to B11)
C10	---	---	EGT 3	Input	Available, jumper set for 0–5V input (connected to B12)
C11	---	---	EGT 4	Input	Available, jumper set for 0–5V input (connected to B13)
C12	---	---	PW 2	Output	Available, switched ground, 1.5A max (connected to E10)
C13	---	---	O2 #1	Input	Available, 0–5V O2 sensor #1 (connected to A6)
C14	---	---	O2 #2	Input	Available, 0–5V O2 sensor #2 (connected to E2)
C15	---	---	Switch 1	Input	Available, switched input (connected to E11)
C16	---	---	Switch 2	Input	Available, switched input (connected to E12)
C17	---	---	Switch 3	Input	Available, switched input
C18	---	---	Timing Ground	Input	Available, timing ground
C19	---	---	PW 1i	Output	Available, switched ground, inverted PW 1 signal
C20	---	---	PW 2i	Output	Available, switched ground, inverted PW 2 signal
C21	---	---	CAN1H	Output	Dedicated, CAN1 high side
C22	---	---	CAN1L	Output	Dedicated, CAN1 low side

\*\*\* Important: Wire View of AEM EMS. Reference diagram below for pin location. \*\*\*



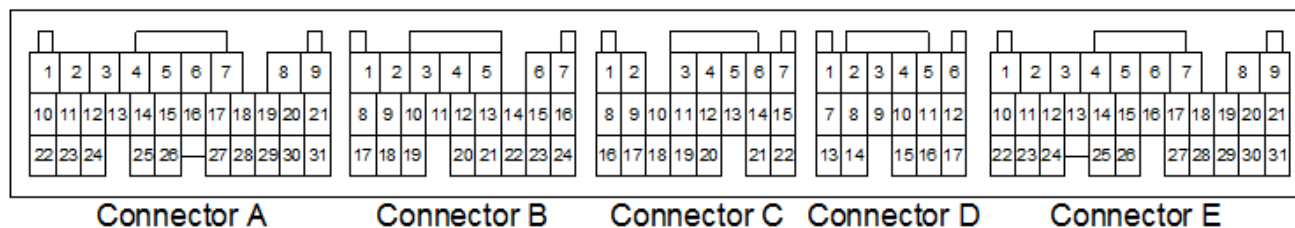
### Connector E

Pin	2002–2004 Acura RSX K20A2, K20A3 2002–2004 Honda CRV K24A1 2001–2005 Honda Civic D17, Civic Si K20A3	Wire color	AEM EMS 30-6030	EMS I/O	EMS pin description
E1	Immobilizer fuel pump relay	Green/Yellow	Low Side 11	Output	PnP for fuel pump relay
E2	Secondary O2 sensor signal (all except D17A1/6) Third O2 sensor (2001–2005 Honda Civic D17A6 only)	White/Red (Red/Blue for K24A1)	O2 #2	Input	Available, 0–5V O2 sensor #2 (connected to C14)
E3	Logic ground 3	Brown/Yellow	---	---	Not used
E4	Sensor ground 3	Pink (White/Green for K24A1)	Sensor Ground	Output	Dedicated, sensor ground
E5	Sensor voltage 3	Yellow/Blue	+5V Sensor	Output	Dedicated, sensor power
E6	Secondary O2 sensor heater control (all except D17A6) Third O2 sensor heater control (2001–2005 Honda Civic D17A6 only)	Black/White (White/Black for D17A1/6)	Low Side 12	Output	Available, switched ground, 1.5A max
E7	Main relay control	Red/Yellow	Main Relay	Output	Dedicated, ECU activates main relay with switched GND
E8	O2 sensor heater control relay	Orange	Low Side 2	Output	Available, switched ground, 1.5A max
E9	Ignition switch signal 1	Black/Yellow (Yellow/Black for Civic, CRV)	Ignition Switch	Input	Dedicated, +12V Ignition switch signal from Ign key
E10	---	---	PW 2	Output	Available, switched ground, 1.5A max (connected to C12)
E11	---	---	Switch 1	Input	Available, switched input (connected to C15)
E12	---	---	Switch 2	Input	Available, switched input (connected to C16)
E13	---	---	Coil 6	Output	Available, switched ground, 1.5A max
E14	Fuel tank pressure sensor	Light Green	ADCR 13	Input	Available, 0–5V sensor
E15	Electrical load detector	Green/Red	ADCR 11	Input	Available, 0–5V sensor
E16	Power steering pressure switch signal	Light Green/Black	Switch 5	Input	Available, switched input
E17	---	---	Idle 5	Input	Available, switched ground, 1.5A max
E18	Air conditioner clutch relay	Red	Low Side 6	Output	Available, switched ground, 1.5A max
E19	---	---	Idle 6	Output	Available, switched +12V power, 1.5A max
E20	Evaporative emission bypass solenoid valve	Blue/Red (Grey / Red for K24A1)	Low Side 9	Output	Available, switched ground, 1.5A max
E21	Evaporative emissions canister vent shut valve	Light Green/Red (White/Red for K24A1)	Injector 9	Output	Available, switched ground, 1.5A max (connected to C7)
E22	Brake pedal position switch	White/Black	Switch 6	Input	Available, switched input
E23	K-line	---	---	---	Not used
E24	SEFMJ (Instrument cluster multiplex communication)	Yellow	Multiplex	Output	Dedicated, used to drive the air conditioning switch and coolant temperature gauge
E25	---	---	Idle 7	Output	Available, switched ground, 1.5A max
E26	Engine speed pulse	Blue	Low Side 7	Output	PnP for Tacho signal – RPM pulse to instrument cluster
E27	Immobilizer code	Red/Blue (White for K24A1)	---	---	Not used



Pin	2002–2004 Acura RSX K20A2, K20A3 2002–2004 Honda CRV K24A1 2001–2005 Honda Civic D17, Civic Si K20A3	Wire color	AEM EMS 30-6030	EMS I/O	EMS pin description
E28	---	---	High Side 4	Output	Available, switched +12V power, 1.5A max
E29	Service check signal	Brown	ADCR 14	Input	Available, 0–5V input
E30	Write enable signal	Red/White	---	---	Not used
E31	Malfunction indicator lamp (MIL)	Green/Orange (Green/White for K24A1)	Low Side 10	Output	Available, switched ground, 1.5A max

\*\*\* Important: Wire View of AEM EMS. Reference diagram below for pin location. \*\*\*



## 12 MONTH WARRANTY

AEM Performance Electronics 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, at AEM's discretion, of the AEM Electronics part. In no event shall this warranty exceed the original purchase price of the AEM ELECTRONICS part nor shall AEM ELECTRONICS be responsible for special, incidental or consequential damages or cost incurred due to the failure of this product.

Warranty claims to AEM ELECTRONICS must be transportation prepaid and accompanied by 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 ELECTRONICS disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured by AEM ELECTRONICS.

Warranty returns will only be accepted by AEM ELECTRONICS when accompanied by a valid Return Merchandise Authorization (RMA) number. Product must be received by AEM ELECTRONICS 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 ELECTRONICS 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 an RMA requested before the above process transpires. AEM ELECTRONICS will not be responsible for products that are installed incorrectly, installed in a non-approved application, misused, or tampered with.

Fuel Pumps installed with incorrect polarity (+&- wires crossed) will not be warranted. Proper fuel filtration before and after the fuel pump are essential to fuel pump life. Any pump returned with contamination will not be warranted.

Any AEM ELECTRONICS product, excluding discontinued products, can be returned for repair if it is out of the warranty period. There is a minimum charge for inspection and diagnosis of AEM ELECTRONICS parts which are out of warranty. Parts used in the repair of AEM ELECTRONICS electronic components will be extra. AEM ELECTRONICS will provide an estimate of repairs and must receive written or electronic authorization before repairs are made to the product.

Need additional help? Contact the AEM Performance Electronics tech department at 1-800-423-0046 or email us at [tech@aemelectronics.com](mailto:tech@aemelectronics.com).