EMCS OWNERS MANUAL

APR, LLC
1027 Opelika Road Auburn Alabama 36830

APR's Enhanced Modular Chipping System™ (EMCS™) is an industry leading technology that brings many new features to the automotive enthusiast. EMCS technology was developed exclusively by APR, LLC and demonstrates APR's continued commitment to lead the industry with the most technologically advanced products available. EMCS consists of three important parts that work together as a cohesive unit: the EMCS on-board software (the software that is on an EMCS module or stock chip), the support software that is used to program and reprogram the module, and if equipped, the EMCS module (which is soldered to the engine computer board). APR's EMCS is a truly modular system that allows for future enhancements and features to be added as they aredeveloped without the need for additional hardware.

EMCS makes the following advanced optional features possible: (Please note that some features may only be available for certain vehicles. For more information, please consult an APR sales representative.)
Flip Switch: Using the cruise control buttons, you are able to switch between up to four separate ECU programs of your choice. Examples of possible chip programs include stock, performance chip, 100 octane program, valet, etc.
Unique Access Code: A unique access code is used for the security lockout feature and anti-theft system. The user may select any 1 to 4 digit number to be used as their access code. The access code is entered using the cruise control buttons.
Security Lockout Feature: Prevents unauthorized personnel from accessing EMCS functions and changing the current EMCS configuration. The Security Lockout feature is available as a stand-alone option or bundled with the Anti-Theft system.
Anti-Theft System: This theft deterrent system prevents the engine from being started by unauthorized personnel. The engine will crank but not fire. The Anti-Theft option includes the Security Lockout feature option. Do not confuse the Anti-Theft System with the Security Lockout Feature.
Fault-code Erase: Allows you to erase and reset engine related trouble codes without having to use a specialty tool.
Throttle-body Realignment: Allows you to manually perform throttle-body adaptation.
V-Tune: Allows you to make changes to different parameters of your engine's tuning. For advanced users.

VERY IMPORTANT! Precautionary Measures!
Please read the following carefully before installing APR EMCS™ in your vehicle.
In the case of cars that are equipped with EMCS modules, never attempt to change chip modes while the vehicle is in motion. (It is possible to change modes while driving or with the car idling but it is not recommended.) This is dangerous due to the fact that one must look at the dash to locate what mode they are in. Program switching should always be done with the car off and the key in the on position or with the car stopped and the engine idling.
DO NOT attempt to use anything less than certified 100-octane unleaded fuel with programs intended for 100-octane fuel. *Lower octane gases are NEVER to be used with race-gas programs regardless of how much octane booster or other additive is used OCTANE BOOSTER AND A LOWER OCTANE FUEL IS NOT THE EQUIVALENT OF 100-OCTANE RACEFUEL. Failure to comply with this guideline could result in expensive damage to your vehicle. APR will not be responsible for any damage resulting from racing fuel programs.
EMCS features are not intended to be used to deceive dealerships or any other party with regards to warranty work. The EMCS system is intended to function in a manner closely resembling that of the stock ECU programming so that car diagnosis and repair is unimpaired.
Certain engine software programs may not meet state or federal requirements regarding emissions or other such regulations. These programs are intended for off-road use only.
EMCS features are accessed on all Bosch ME7 equipped vehicles using the cars' cruise control buttons. From here on, these buttons will be referred to as they are labeled: SET, RESUME, ON, CANCEL, OFF and, in addition for the newer B6 chassis vehicles, SPEED+ and SPEED-. EMCS will not interfere with normal operation of the cruise control.

Flip Switch (optional)

The Flip Switch option allows you to switch between two or more ECU programs of your choice. Program selection is facilitated by using the cruise control SET button.

WARNING! DO NOT ATTEMPT TO SWITCH PROGRAMS WHILE THE CAR IS IN MOTION! ALTHOUGH A CAR WITH A SOLDERED IN EMCS SYSTEM WILL ALLOW PROGRAM SWITCHING WHENEVER THE IGNITION IS ON, IT IS NOT RECOMMENDED TO SWITCH PROGRAMS UNLESS THE ENGINE IS OFF AND/OR THE CAR IS MOTIONLESS. ATTEMPTING TO SWITCH PROGRAMS WHILE DRIVING COULD BE DISTRACTING FOR THE DRIVER AND COULD RESULT IN AN ACCIDENT.

Procedure to Swap Program Modes

1. Locate your EMCS configuration sheet that accompanied your ECU.
2. Turn the ignition key to the ON position. (for DirectPort Programmed cars, the engine MUST be off)
3. Be sure that your EMCS module is in the UNLOCKED state (if equipped with the security feature). Unlock the module if required. Remember that you will not be able to unlock the module if the engine is running.
4. Make sure the car is not in motion.
5. Make sure the cruise control is in the on position.
6. Hold down the cruise control SET button to select the appropriate engine program. After five seconds, the check engine light will begin blinking once a second. This will continue for five seconds. Next, the check engine light will begin blinking two times a second for five seconds. This pattern will continue for three blinks (depending on the number of programs that are configured) and will end with four blinks a second. The number of blinks per second corresponds to the program number on your configuration sheet:
   - Program 1 = 1 blink per second
   - Program 2 = 2 blinks per second
   - Program 3 = 3 blinks per second*
   - Program 4 = 4 blinks per second*
   - (* if equipped)
7. Release the cruise control set button when the indicated blinks per seconds corresponds with the program that you wish to run. Ex.- To run the program in slot 2, hold down the cruise control SET button until the check engine light blinks twice per second and then release the SET button. You will now be running program number 2.
8. (DirectPort Programmed Cars only) After changing programs, turn the ignition key to the OFF position for a minimum of 10 seconds. Turn the ignition to the ON position and wait until the check engine and EPC lights illuminate on the dash before starting the engine. FAILURE TO DO THIS, ESPECIALLY ON AUTOMATIC CARS, WILL MOST LIKELY RESULT IN A FAULT CODE AND POOR PERFORMANCE.

Note: If your EMCS system is equipped with two programs, then you will never see 3 blinks or 4 blinks per second. The pattern will end with two blinks per second. Similarly, if your EMCS system is equipped with 3 programs, you will never see 4 blinks per second. Remember: If your EMCS system is equipped with special software for particular hardware and/or fuel DO NOT attempt to run those programs without the correct matching hardware and/or fuel. This could result in serious damage to your car.

Unique Access Code (Optional)

The unique access code allows you to unlock the security lockout feature and AntiTheft system (if so equipped). The code is composed of 1 to 4 digits and is user-defined at the time of purchase. Please note that if your car is an Audi B6 chassis vehicle (Audi A4 MY2002+) you will need to use the second procedure listed below for entering your access code. If you had Directport Programming trial software, and you purchase the trial, you will enter a 6 digit Unique Access Code to unlock your ECU for the first time.

Entering your Unique Access Code (all vehicles expect Audi B6 chassis)

You will need to enter your unique access code to put your ECU into the UNLOCKED state (if configured with the optional Security Lockout feature) or to turn off the Anti-theft system:

1. Locate your unique access code.
2. Turn ignition key to the ON position. DO NOT START THE ENGINE. The check engine light and EPC light should stay illuminated unless anti-theft is active, in which case the check engine light will blink continuously.
3. Ensure that the cruise control slider button (this is the inner cruise control button) is in the ON position. If the cruise control button is OFF, turn it ON. Press the CANCEL button once before proceeding to the next step.
4. Enter the first digit of your unique access code by pressing the SET button on the cruise control stalk the same number of times corresponding with the first digit of your security code (ex. for a 9, press the SET button nine times). You do not have to hold the set button for any specific period of time, just press the button and release it.
5. Use the inner button on the cruise control stalk to register each digit of your unique access code. To do this, slide the cruise control button from the ON position to the CANCEL position. (If you go past the CANCEL position to the OFF position it is OK, just turn the cruise control back to the ON position and proceed with the next digit).
6. Enter subsequent digits in your access code by following the same procedure you used above, depressing the SET button the number of times corresponding with each digit. Do not forget to register each digit by sliding the inner cruise control button to at least the CANCEL position. Also, ensure that the cruise control slider button is in the ON position before proceeding with the next digit. If you make a mistake entering your access code, press CANCEL and then start over with the first digit. It is not necessary to turn the ignition off and back on if you make a mistake.
7. After you have correctly entered your unique access code and the cancel button is pressed after the last digit, the check engine light and EPC lights will start blinking alternately to signify that the code was entered correctly. If unlocking DirectPort trial software, wait 10 seconds after the lights stop flashing before performing any other EMCS functions.

Entering your Unique Access Code (Audi B6 chassis vehicles)

You will need to enter your unique access code to put your ECU into the UNLOCKED state (if configured with the optional Security Lockout feature) or to turn off the Anti-theft system:

1. Locate your unique access code.
2. Turn ignition key to the ON position. DO NOT START THE ENGINE. The check engine light and EPC light should stay permanently illuminated unless anti-theft is active, in which case the check engine light will blink continuously.
3. Ensure that the cruise control stalk is set to the ON position. Press the SPEED - button once before proceeding to the next step.
4. Enter the first digit of your unique access code by pressing the SPEED + button on the cruise control stalk the same number of times corresponding with

the first digit of your security code (ex. for a 9, press the SPEED + button nine times). You do not have to hold the SPEED + button for any specific period of time, just press the button and release it.

5. Press the SPEED – button on the cruise control stalk to register each digit of your unique access code.

6. Enter subsequent digits in your access code by following the same procedure you used above, depressing the SPEED + button the number of times corresponding with each digit. Do not forget to register each digit by pressing the SPEED – button between each digit of the code. If you make a mistake entering your access code, press SPEED – and then start over with the first digit. It is not necessary to turn the ignition off and back on if you make a mistake.

7. After you have correctly entered your unique access code and the SPEED – button is pressed after the last digit, the check engine lights and EPC lights will start blinking alternately to signify that the code was entered correctly. If unlocking DirectPort trial software, wait 10 seconds after the lights stop flashing before performing any other EMCS functions.

Security Lockout Feature (Optional)

Note: If you did not opt for the security feature, you can skip this section. Do not confuse this feature with the Anti-theft System. THESE ARE TWO SEPARATE FEATURES! The Security Lockout Feature prevents unauthorized personnel from accessing the EMCS functions. When the EMCS module is in the LOCKED state, it will not be possible to select any other EMCS features or switch between ECU programs. Putting the EMCS module into locked state will lock in the current configuration. Example: You have selected the second ECU program (chipped). Next you select the LOCKED state. The ECU will now run the program that you had previously selected (chipped). If you attempt to switch chip states or use any other EMCS function by depressing the cruise control buttons while in the LOCKED state, you will receive no visual feedback and the requested function will not run. If your EMCS product is equipped with the security feature, then you MUST enter your unique access code correctly before you will be able to access EMCS features. The EMCS module will always default to the LOCKED state when ECU power is interrupted and the ECU will run the first program (usually stock). The EMCS module will not reset when the ignition key is turned OFF and back ON. You will not lose your current EMCS settings unless the ECU loses power (i.e. the ECU is unplugged or the battery is disconnected).

Procedure to put the EMCS module into the UNLOCKED mode

1. Enter your unique access code by following the procedure outlined above under ‘Entering your Unique Access Code’.

2. After successful access code entry, you will now be able to access all other EMCS functions that your ECU is equipped with until the EMCS module is relocked.

Procedure to put the EMCS module into the LOCKED mode

1. Ignition key must be in the ON position. Engine can be either running or not running.

2. Press and hold the RESUME button on the cruise control switch. Keep holding the RESUME button until the check engine light blinks three times a second and release the button. The EPC light will also be lit while the check engine light is blinking. If you have purchased the fault code erase and throttle body adaptation options then you will need to wait while the light first blinks once a second (after five seconds), then twice a second for five seconds, and finally three times a second. The check engine light and EPC light will blink alternately for three seconds indicating that the EMCS module has been locked.

Overview of EMCS Security Feature Instructions

- The EMCS module will always default to the LOCKED state with the first program selected.
- The ignition key must be in the ON position with the engine not running in order to enter your unique access code.

- Enter your unique access code by using the cruise control SET button and use the CANCEL button to register each digit of the unique access code. If you make a mistake while entering your unique access code, press CANCEL and begin again with the first digit.
- When the unique access code is correctly entered, the check engine light and EPC light will blink alternately for three seconds to indicate that the EMCS module has been unlocked successfully. The same blinking pattern will occur when the module is relocked.
- The module can be locked with the engine running or not as long as the ignition is ON. This is accomplished by holding the RESUME button until the check engine light blinks three times a second and then releasing the RESUME button.
- The EMCS module will stay in the same chip mode until another mode is selected. This mode will not be affected by turning the ignition off nor will this mode change due to the EMCS module's locking state.

Anti-Theft System (optional)

The EMCS Anti-Theft system will prevent the vehicle's engine from starting until the correct access code has been entered. The Anti-Theft system must be activated in order to prevent the engine from being started on the next attempt. If the Anti-Theft system is not activated, the engine will start and run normally without requiring Anti-Theft deactivation. The Anti-Theft option is only available bundled together with the Security Lockout feature (however, the Security Lockout feature can be purchased as a stand-alone option.)

Activating the Anti-Theft System

Each time you wish to activate the Anti-Theft System you must follow these simple steps:

1. The engine must be running or the ignition key must be in the ON position before proceeding.
2. Be sure that your EMCS module is in the UNLOCKED state. If not unlocked, then unlock before proceeding. See instructions on Security Lockout Feature.
3. To activate the Anti-theft system, press the following sequence of buttons in rapid procession:
   SET>SET>RESUME>RESUME>SET>SET>RESUME>RESUME

   This is a total of eight button presses. If more than ~1.5 seconds elapse between a button press, the sequence will reinitiate to prevent false sequence recognition.
4. If successfully activated the check engine light will blink continuously to signify that the Anti-Theft system is active. If the check engine light is not blinking continuously then recheck steps 1-3.
5. If the engine is running then it will continue to do so until the next time the engine is switched off at which point the engine will not be allowed to be started again until correct access code entry.

Deactivating the Anti-Theft System

1. Enter your unique access code by following the procedure outlined above under 'Entering your Unique Access Code'.
2. Upon successful access code entry, the check engine light should no longer be blinking continuously. The engine will now start and run normally.

Fault Code Erase/Throttle-Body Alignment (Optional)

The EMCS fault code erase feature can be used to erase all fault codes present on the engine computer. The throttle body alignment feature can be used to manually run the throttle body alignment sequence. These features are only available as a pair. Both features are activated using the cruise control RESUME button.

Erasing Fault Codes / Performing Throttle-Body Alignment

1. Turn the ignition key to the ON position.
2. Be sure that your EMCS module is in the UNLOCKED state (if equipped with the security feature.)
3. You will use the cruise control RESUME button to access these two functions. To erase fault codes, hold the RESUME button until the check engine light starts blinking once per second and then release the cruise control button. The EPC light will stay illuminated while the check engine light is blinking (this is to distinguish between the program switching mode.) To run the throttle body adaptation sequence, hold the RESUME button until the check engine light blinks two times per second and then release the cruise control button. Note: Throttle body alignment is only possible when the ignition is ON and the engine is not running. Also, only attempt to run the throttle body adaptation sequence when the engine is cold.

EMCS OPTIONS INSTALLED

Customer Name _____

Serial Number _____ Date Installed _____

MODE ___ Stock Program
MODE ___ 91 Octane ((R+M)/2) Chipped Program*
MODE ___ 93 Octane ((R+M)/2) Chipped Program*
MODE ___ Valet Program
MODE ___ 100 Octane ((R+M)/2) Race Program*
MODE ___ 104 Octane ((R+M)/2) Race Program*

☐ Fault Code Erase/ Throttle Body Alignment

☐ Unique Access Code ____ ____ ____ ____

☐ Anti-Theft** ☐ Trial Software

☐ V-Tune

* Indicates a program designed only for use with unleaded gasoline with a minimum octane rating as specified.

** Security Lockout is required to operate this feature.