PERFORMANCE ELECTRONICS

Internal MAP Water/Methanol Injection Controller 30-3304, 30-3306

WARNING:

Improper installation and/or adjustment of this product can result in major engine/vehicle damage! Use of this injection system requires proper tuning! Use this system with EXTREME caution! If you are uncomfortable with anything about this, please refer the installation to an AEM trained tuning shop or call 800-423-0046 for technical assistance. You should also visit the AEM Performance Electronics Forum at http://www.aemelectronics.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 upon a highway. This product is legal solely for vehicles used in competition which may never be used upon a public road or highway.

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Instruction Part Number: 10-3304 Rev A

Controller

Settings

The AEM Water Methanol Injection Controller is a progressive type controller. This means that fluid will be injected in proportion to the amount of boost that is detected by the internal MAP sensor. In other words, more boost equals more fluid. It is therefore imperative that the vacuum/pressure connection be made properly and securely or vehicle/engine damage could occur. In addition, the controller will automatically compensate for any fluctuations in battery voltage variations to ensure consistent flow under all conditions.

The two knobs on the face of the controller dictate at what manifold (boost) pressure minimum fluid injection starts and at what pressure maximum/full fluid injection occurs. Fluid injection will 'progressively' increase between these two points as set by the adjustment knobs.

The "Start PSI" dial has a range from 1 psig (full counterclockwise rotation) to 11 psig (full clockwise rotation). The "Full PSI" dial has a range of 5 psig (full counterclockwise rotation) to 35 psig (full clockwise rotation). It is suggested to adjust the "Start PSI" value by setting the dial to approximately 25% of the vehicles maximum boost. Adjust the full-in value to your maximum possible boost. These are only suggestions; improper use or setting could result in engine or vehicle damage -- please consult your tuner.

Status LED

The controller has an on-board Status LED. This will mimic the operation of the external LED. Upon startup the current mode is flashed in green on the status LED. It will flash error codes in red as well as illuminate with varying intensity as a function of flow in green.

Fuse

The controller has an externally accessible fuse. The controller itself will turn on and function, but the pump will not run without the fuse. If the controller is reporting an open circuit it may be that the fuse has blown, and or is not installed correctly. Use a 15 amp fast blow fuse for replacement purposes.

“Test” Button

The Test button feature is available to test the systems functionality. This feature should be used **ONLY** with the nozzle disconnected from the engine. This is to prevent unintentional pumping of fluid into the engine. To operate the test button press and hold. The pump speed will gradually increase from zero to full speed over 3 seconds, and then remain full for another 3 seconds before stopping. Flow should begin gradually and then hold at full pressure for a total test time of 6 seconds.

Short circuit self-diagnostics

There are two modes of pump-driver short circuit protection available. One can detect a short at any time but produces a slight buzzing in the pump. This should not be noticeable under most conditions, but can be turned off if it is objectionable. If turned off, a short circuit can only be detected when the pump is running.

To enable or disable this diagnostic (and the buzzing): Press and hold the “Test” button while applying power to the controller. The change is acknowledged by a single long flash of the status LED output and the external LED. Once the button is released the controller will continue to function normally. You can also tell what mode has been selected by listening for the buzzing sound in the pump. Repeating this operation will toggle between the two modes.

Controller Install

The progressive controller is **NOT** waterproof and should **NOT** be mounted in the engine bay! Find a convenient location for the controller inside the driver's compartment. The adjustment knobs should remain in an accessible location but still remain protected from possible water incursion. If you need to extend the wires to mount the controller use at least 16 AWG wire for the pump and controller ground circuits and 18 AWG for the remainder. The controller contains an externally accessible fuse, no additional fuses are required. Use the supplied zip-ties to mount the controller.

Progressive Controller Installation

Pin #	Description	Wire**	Color	Connection
1	Pump Ground	16 AWG	Orange	Connect to ground (black) wire of pump.
2	LED -	20 AWG	Gray	Connect to ground (black) wire of external LED.
3	LED +	20 AWG	Violet	Connect to positive (red) wire of external LED.
4	Solenoid -	20 AWG	Brown/White	1.5A Low Side output. Connect to optional flow control solenoid.
5	Boost Safe LS Out	18 AWG	Green	1.7A Low Side output. Grounded when error condition exists.
6	Pump Power	16 AWG	Pink	Connect to the positive (red) wire of pump.
7	Ground	16 AWG	Black	Main ground connection, connect directly to battery ground.
8	Level Switch+	20 AWG	White	Connect to the white wire of the fluid tank level sensor*
9	Level Switch-	20 AWG	Brown	Connect to the black wire of the fluid tank level sensor*
10	Arm Switch +	20 AWG	Yellow	Arms injection system. Connect to a switched 12V source.
11	Empty-Not Used			Not Used
12	Power 12V	16 AWG	Red	Main Power Connection, connect directly to positive battery terminal.

*Note: If fluid tank is equipped with previous generation level sensor, identified by having two black wires, then pins 8 (white) and 9 (brown) may be connected to either of the two black sensor wires. The polarity is unimportant.

Note: If you need to extend the wires to mount the controller use at least 16 AWG wire for the pump ***and* controller ground circuits and 18 AWG for the remainder.

External LED Install

Find a suitable location in the driver's line of sight to mount the external LED. Mount the LED and run the wires to the controller. The LED indicates the operation of the controller. If the pump is off and there are no errors the LED will be off. If there are no errors and the pump is on the LED intensity will vary with the pump speed. If there are any errors they will be indicated by flashing the LED.

Boost Pressure Hose

Using the supplied vacuum tee and rubber hose, tap into a manifold pressure (vacuum/boost) line.

Optional System Upgrades

Water/Methanol Injection FAILSAFE Device AEM P/N 30-3020/30-3020M

Actively monitors the entire flow curve independent of pressure, continuously collecting flow vs. injection rate data so that any deviation from your established flow curve will trigger an alarm output that can be used to reduce boost or timing, change maps, add fuel, trigger a two-step or perform practically any action you choose to save your engine. It is PC programmable (with USB connectivity) which eliminates the guesswork when setting min/max threshold parameters. **HIGHLY RECOMMENDED** for all water/methanol injection systems

Water/Methanol Injection Flow Gauge – AEM P/N 30-5141/30-5142

Displays flow rate data on a smooth moving needle-type gauge that allows you to accurately monitor the status of your injection system in real time. Available in max flow rates of 500 cc/min or 1000 cc/min with a black or white face. The AEM water/methanol injection filter is **HIGHLY RECOMMENDED** when using this flow gauge.

Water/Methanol Injection Filter – AEM P/N 30-3003

Inline filter that uses a micronic mesh screen to filter out particles as small as 40 microns. Allows a cleaner flow of water/methanol into the injection pump, lines, and nozzles increasing overall system longevity. Injection filter is **HIGHLY RECOMMENDED** when using the AEM water/methanol injection flow gauge.

Additional Nozzle Kit – AEM P/N 30-3012

Includes one nozzle body, two jet sizes, and the necessary hardware to run a second nozzle in your injection system.

5 Gallon Tank – AEM P/N 30-3010

Upgrade to a 5 gallon tank to maximize your fluid holding capacity. Includes level sensor and mounting hardware.

AEM Electronics warranty

Advanced Engine Management Inc. warrants to the consumer that all AEM High Performance products will be free from defects in material and workmanship for a period of twelve (12) months from date of the original purchase. Products that fail within this 12-month warranty period will be repaired or replaced at AEM's option, when determined by AEM that the product failed due to defects in material or workmanship. This warranty is limited to the repair or replacement of the AEM part. In no event shall this warranty exceed the original purchase price of the AEM part nor shall AEM be responsible for special, incidental or consequential damages or cost incurred due to the failure of this product. Warranty claims to AEM must be transportation prepaid and accompanied with dated proof of purchase. This warranty applies only to the original purchaser of product and is non-transferable. All implied warranties shall be limited in duration to the said 12-month warranty period. Improper use or installation, accident, abuse, unauthorized repairs or alterations voids this warranty. AEM disclaims any liability for consequential damages due to breach of any written or implied warranty on all products manufactured by AEM. Warranty returns will only be accepted by AEM when accompanied by a valid Return Merchandise Authorization (RMA) number. Product must be received by AEM within 30 days of the date the RMA is issued.
Please note that before AEM can issue an RMA for any electronic product, it is first necessary for the installer or end user to contact the EMS tech line at 1-800-423-0046 to discuss the problem. Most issues can be resolved over the phone. Under no circumstances should a system be returned or a RMA requested before the above process transpires.

AEM will not be responsible for electronic products that are installed incorrectly, installed in a non-approved application, misused, or tampered with.

Any AEM electronics product can be returned for repair if it is out of the warranty period. There is a minimum charge of $50.00 for inspection and diagnosis of AEM electronic parts. Parts used in the repair of AEM electronic components will be extra. AEM will provide an estimate of repairs and receive written or electronic authorization before repairs are made to the product.