



OVERVIEW

August 6th, 2013, Hawthorne, CA – AEM has released its Infinity Plug & Play programmable ECU for the North American 2001-'06 BMW E46 M3 with manual transmission (Infinity-8 PN 30-7109 and Infinity-10 PN 30-7105). The Infinity ECU for the E46 M3 includes an application-specific start-up calibration and connects to the E46 M3 via a Plug & Play harness that is sold separately (PN 30-3510). It is designed to fit in the factory location and AEM's engineers were able to take advantage of the E46 M3's sophisticated CAN bus system to incorporate several features directly into factory buttons on the steering wheel and console.

A Complete Stand Alone ECU

The Infinity ECU combines with the Plug & Play harness to replace the E46 M3's factory ECU. It controls all of the engine functions including the VANOS variable cam control system and Drive by Wire (DBW) system.

Plug & Play Harness with Expansion Port

AEM's sealed, weatherproof Plug & Play harness (sold separately) includes dual Lambda ports, an AEMnet port for communication with other AEMnet enabled devices and an expansion port with a High Performance DTM-Style 12P connector for adding common aftermarket sensors including fuel pressure, air inlet temperature, MAP, boost control solenoid and ethanol content. The expansion port also includes a sensor ground, 5v reference, power from relay and high side output for activating a solenoid, and switched inputs for auxiliary radiator fan, boost target and no-lift shift.

Map Switching

AEM incorporated the Infinity's map switching capability into the factory steering wheel buttons, eliminating the need to wire in and mount an ancillary position switch. Using InfinityTuner software, users can now select from 8 modes for boost control maps, fuel maps, timing maps, Lambda target maps and more and select maps on the fly using the factory cruise UP (+) and DOWN (-) buttons.

To ensure that drivers know which mode they are in when not connected to the Infinity ECU, when the vehicle is keyed ON the tachometer moves to a specific RPM point to indicate which map the Infinity is using (for example 3k RPM indicates Mode 3, 4k RPM indicates mode 4, etc.). When the driver changes maps while driving, the tachometer will temporarily change from revs to the RPM point that indicates the switched mode for one second and then resume normal tachometer operation. Actual engine RPM will not be affected during this one second period.

Three-Step Rev Limiter

Users can configure the CRUISE ON/OFF (1/0) as a Temporary three step limiter switch through the InfinityTuner software (vehicle speed or time after launch dependent), and can set rev limits at specific rpm by points or set a flat limiter and use it as an RPM hold for launches.

Definable Rev Limit on Tachometer

The E46 M3's tachometer incorporates an LED ring around the outer perimeter to suggest rev

limits, and the Infinity ECU uses these LEDs to indicate user defined active rev limits. For instance, if the Coolant Protect feature in InfinityTuner is set with a rev limit to 5k RPM when the engine is cold, the rev limit is indicated via the lights around the perimeter of the tachometer until defined coolant temps for normal operation are achieved. Whatever rev limits a user configures will always be displayed, with the lowest defined rev limit value taking precedence in the LEDs surrounding the tachometer. This feature applies to any protect features, the three step limiter, etc.

Traction Control

The E46 M3 comes with wheel speed/ABS sensors from the factory, and the Infinity is able to use them for traction control via fuel cut, spark cut or retracting DBW throttle response. This eliminates the need to install additional sensors for traction control.

The CRUISE SET/HOLD (speedometer icon) can be configured as a traction control enable or disable button through the InfinityTuner software. Users can define a specific slip target for traction control in the software and turn it on or off using this button, or set two slip targets and use it for a mild and aggressive traction control strategy.

User Definable DBW Throttle Response

Using the Sport button near the shifter, users can define throttle curves in the InfinityTuner DBW software and take full control of throttle response. This allows users to change throttle response rate on the fly and is ideal for setting rain mode throttle curves.

Fits In Factory ECU Location

AEM's engineers have designed the Infinity ECU and harness to fit in the factory ECU location to maintain overall weather resistance of the electronics and deliver a clean look in the engine compartment.

The Infinity EMS delivers high-end engine control for the racing masses at a fraction of the cost. Built around a latest-generation 200MHz automotive processor, the Infinity is capable of processing 400 MIPS (millions of instructions per second). All Infinity systems come fully enabled without the need for feature add-on purchases. Combined with AEM's industry leading after-purchase support system, including free technical support, the Infinity is the ultimate engine control solution for both professional race teams and weekend track cars.

The Infinity's airflow-based tuning models simplify start up and speed up the tuning process by eliminating many of the lookup and trim tables (Correction Tables) necessary in previous generation ECUs.

- Airflow model based (VE) tuning
- ECU Set Up Wizard simplifies start up
- Flex fuel compatible
- Multi fuel capable
- Drive by wire
- Variable valve control
- Multiple boost control strategies
- Nitrous control
- Map switching
- Dual internal Lambda controllers
- Dual knock sensing circuits
- Data logging up to 64GB, up to 100 channels at 1KHz
- Outputs to 3rd party dashes and data loggers
- Industry leading data transfer speed (up to 480Mb/sec)

- Integrated engine protection strategies
- Sealed enclosure and IP67 rated comms ports

SPECIFICATIONS	INFINITY 708 PN: 30-7109	INFINITY 710 PN: 30-7105
2-Stroke Engines	Yes	Yes
4-Stroke Engines	Yes	Yes
Cylinders	Up to 8	Up to 10
High Impedence Injectors (Sequential)	Up to 8	Up to 10
Low Impedence Injectors(Sequential)	Up to 8	Up to 10
Coils (0-5V Falling Edge)	Up to 8	Up to 10
Digital Inputs	Up to 8	Up to 8
VR/Mag Inputs	Up to 6	Up to 6
Analog Voltage Inputs	Up to 17	Up to 17
Analog Temp Inputs	Up to 6	Up to 6
Knock Control	2-Channel	2-Channel
On Board Wideband Air/Fuel Controllers	2	2
Drive-By-Wire	Dual	Dual
H-Bridge Channels	2	2
High Side Outputs	Up to 2	Up to 2
Low Side Outputs	10	10
Low Side Outputs that can be PWM	10	10
4-Wire Stepper Motor Control	Yes	Yes
CAN Channels	2	2
Boost Control (RPM, Time, Gear, VSS, Switch Input, Flex Fuel Content)	Yes	Yes
Variable Cam Control	Up to 4	Up to 4
Engine Protection*	Yes	Yes
Launch Control	Yes	Yes
Nitrous Control	Up to 4-Stage	Up to 4-Stage
Traction Control	Up to 4-Wheel Speed	Up to 4-Wheel Speed
Data Logging	Up to 64GB	Up to 64GB
Weather Resistant Sealed Electronics	Yes	Yes
Connector Pins	129	129
Enclosure Dimensions	6.75" x 6" x 1.8"	6.75" x 6" x 1.8"
Weight	24oz / 680.4g	24oz / 680.4g