PERFORMANCE ELECTRONICS

| SPECIFICATIONS | INFINITY 308<br>PN: 30-7113 | INFINITY 358<br>PN: 30-7114 |
|---|---|---|
| 2-Stroke Engines | N/A | N/A |
| 4-Stroke Engines | Yes | Yes |
| Cylinders | Up to 8 | Up to 8 |
| High Impedence Injectors (Sequential) | 8 | 8 |
| Low Impedence Injectors (Sequential) | 2 | N/A |
| Coil Drivers (0-5V Falling Edge) | 8 | N/A |
| Coil Drivers (to drive "Dumb" Coils or CDI) | 1 | 8 |
| VR/Mag Inputs | Up to 2 | Up to 2 |
| Analog Voltage Inputs | Up to 9 | Up to 9 |
| Analog Temp Inputs | Up to 3 | Up to 3 |
| Knock Control | 2-Channel | 2-Channel |
| On Board Wideband Air/Fuel Controllers | N/A | N/A |
| Drive-By-Wire | N/A | N/A |
| H-Bridge Channels | N/A | N/A |
| High Side Outputs | N/A | N/A |
| Low Side Outputs | 10 | 10 |
| Low Side Outputs that can be PWM | 7 | 7 |
| 4-Wire Stepper Motor Control | Yes | Yes |
| CAN Channels | 1 | 1 |
| RS232 Channels* | 1 | 1 |
| Boost Control (RPM, Time, Gear, VSS, Switch Input, Flex Fuel Content) | Yes | Yes |
| Variable Cam Control | N/A | N/A |
| Engine Protection** | Yes | Yes |
| Launch Control | Yes | Yes |
| Nitrous Control | Single Stage | Single Stage |
| Traction Control | Up to 2-Wheel Speed | Up to 2-Wheel Speed |
| Data Logging | Basic Engine History | Basic Engine History |
| Weather Resistant Sealed Electronics | Yes | Yes |
| Connector Pins | 73 | 73 |
| Enclosure Dimensions | 7.35" x 6.55" x 1.8" | 7.35" x 6.55" x 1.8" |
| Weight | 29.9oz / 848g | 29.9oz / 848g |

* Dual use pins. Tx and Tx shared with 2 digital inputs. DOES NOT OUTPUT AEM SERIAL DATA.
** Engine protection is programmable and can be coolant temp-, oil temp-, oil pressure-, AFR vs MAP, intake air temp-, knock- or fuel pressure-based.

**AIRFLOW MODEL BASED CALCULATIONS**
Infinity's airflow model based systems greatly reduce the amount of time it takes to set up and tune an engine by eliminating many of the lookup and trim tables (correction tables) necessary in previous generation ECUs. The Infinity's airflow based, or volumetric efficiency (VE) based models calculate an engine's requirements in real time based on an advanced algorithm that has various modes for calculating air flow. Once the user inputs an engine's basic parameters (displacement, cylinders, ignition type, and firing order) and methods of calculation for airflow and ignition they can begin setting the engine's VE table in the software.

**InfinityTuner USER INTERFACE SOFTWARE**
InfinityTuner is optimized for speed and performance. The software has the power to control a multitude of features found in today's modern racecars, and features an advanced tuning Wizard to reduce set up time. An ECU Setup Wizard takes complex calibration setup work and simplifies it through a smart interface that features tabs for quick set up of vital engine functions. Each tab includes a description of the function.

InfinityTuner software is highly flexible. It allows you to choose from multiple strategies for boost control, idle control, wheel speed-based traction control, charge air temp blend, launch control and more.

All controls in the Infinity ECU are synched to logged data which allows users to edit calibration data during log playback to minimize tuning time. AEMdata, AEM's advanced data logging analysis software is also included for reviewing data logs.

**ULTRA-HIGH RESOLUTION FUEL CONTROL**
The Infinity ECU calculates injector pulsewidth in units of 1/10th of a microsecond (0.0000001 second). Individual cylinder fuel trim is included and user adjustable.

**ACCURATE IGNITION TIMING UNDER ANY CONDITION**
InfinityTuner software features a 3D ignition trim map (coolant and air temp based), and its back-end timing code is tested to 100,000 RPM. Individual cylinder ignition trim is included.

**FLEX FUEL COMPENSATION**
Flex fuel compatibility is included, and the Infinity is able to make automatic adjustments for ethanol content in the fuel with the addition of an ethanol content sensor (sold separately).

**MULTI-FUEL CAPABLE**
The Infinity has the ability to run two separate fuel types simultaneously through staged fuel injection

**IDLE CONTROL**
The Infinity ECU uses a coolant temp based idle control model. It includes an RPM vs. Engine Speed Rate idle decel feature that provides accurate control of the IAC and allows for adjustment of engine braking. The Infinity's idle TPS offset provides smoother low idle operation when necessary, like driving in the pits or return lane following a pass.

**MULTIPLE BOOST CONTROL STRATEGIES**
Choose from time, gear, vehicle speed, switch based or other boost control strategies. The Infinity's boost control includes two 2D base duty tables and two 2D boost target tables. The

second tables can be used as a trim, and users can choose from multiple strategies including IAT, MAP, Baro (kpa), throttle %, flex fuel content, boost target and more. Please visit our Forumfor an in depth review of the Infinity's boost control capabilities.

**NITROUS CONTROL**
The Infinity's software allows you to run a single-stage wet or dry nitrous set up (four-stage available soon). This feature includes nitrous timing delay to account for nitrous bleed out, and can be set up for water/methanol injection tuning. Four stage nitrous will be upgraded for free for existing Infinity users when it becomes available.

**MAP SWITCHING**
The Infinity includes up to four separate ignition maps, four separate Lambda maps and two separate VE maps with independent values. Using AEM's 12 Position Trim Pot, this powerful feature delivers many valuable tuning options including:

- Multiple maps for multiple track conditions (practice map, rain map, qualifying map, FTW map)
- Change boost target
- Change Lambda target
- Change ignition target
- Tie boost, Lambda and ignition targets together and change them all
- Ideal for test mapping during tuning
- Change boost base duty
- Control PWM switches (like water/methanol injection)
- Choose between 2 VE tables for VVC or when restrictors are in place
- Blend between flex fuel ignition maps
- Blend by cam position and gear

**ENGINE PROTECTION**
Multiple engine protection strategies are incorporated into the Infinity ECU. Available strategies include:

- MAP (create limp mode using Assumed Pressure Ratio table to compensate for pressure if sensor fails)
- Overboost (boost fuel cut until boost/throttle decreases)
- Fuel pressure (injector flow compensated for variations in pressure, sensor required)
- Oil pressure (trigger light or limit RPM if pressure drops below set value, sensor required)
- RPM (rev limiter)
- Coolant temperature, Temp vs. RPM (fuel and ignition cut, sensor required)
- Knock control with feedback
- Lean protection (fuel and ignition cut)

**REAL-TIME ADVANCED DIAGNOSTICS**
The Infinity's diagnostics software can be configured to constantly monitor signal and current quality to alert the user of a potential issue before it creates the potential for engine damage.

**CLOSED LOOP AFR FEEDBACK CONTROL**
Infinity Series 3 users have the ability to add up to two external wideband air/fuel ratio (AFR) sensor controllers via analog inputs or through AEMnet CANbus using AEM's X-Series Wideband AFR Controllers for closed-loop wideband AFR feedback control.

**DUAL KNOCK SENSING**
Dual knock signal conditioning circuits allow for precise measurements of knock levels. The Infinity can utilize both Piezoelectric and Flat Response type knock sensors.

**RELIABILITY**
The Infinity ECU is constructed using automotive-rated components designed to withstand the harshest racing environments. Its enclosure and connectors are sealed to make it suitable for engine bay mounting. An advanced wear-leveling strategy for flash memory ensures a lifetime of reliable performance.

**COMMUNICATIONS**
The Infinity ECU is able to transfer data via USB at up to 480 Mb/second. It features a fully-sealed IP67 communications connection system.

**NETWORK INTERFACES**
Infinity is AEMnet enabled and will communicate with another AEMnet-equipped device. It is able to output to 3rd party dash/logger devices (not all 3rd party dash/logger devices may be supported). Please contact your AEM dealer for more info.

**INFINITY SERIES 3 EMS CAPABILITIES:**

- Airflow model based calculations
- VE-based engine startup
- Multi-fuel capable
- Flex fuel compensated – fuel, ignition and boost with blend
- Multiple boost control strategies (time, gear, vehicle speed, switch and more)
- 2-step programmable launch control (3-step with Advanced Tuning Package)
- Programmable traction control, 2-wheel speed
- No-lift shift
- User configurable soft-cut rev limiters
- User configurable anti-lag
- Map switching (4 Separate ignition maps, 4 separate Lambda target maps, 2 separate VE tables)
- Single stage wet or dry nitrous control
- Integrated engine protection strategies
- Target Lambda table, 10x10
- Open-loop fuel pressure compensation
- O2 lean-out protection
- 2-channel adaptive knock control
- Configurable coil dwell (RPM, voltage and load based)
- Individual cylinder ignition trim (RPM based)
- Individual cylinder fuel trim (RPM based)
- 3D ignition trim maps (coolant and air temp)
- Real-time sensor diagnostics
- Ignition table, 20x20
- VE airflow table, map vs. engine speed, 20x20
- User adjustable charge temperature blend (CLT/AIT, engine speed dependent)
- Idle control (stepper and pulsewidth)