- Air Temperature compensation Strategies
- Antilag Strategies
- Autotune Mapping Strategy
- Auxiliary inputs
- Boost Control Strategies
- Check Engine Light status
- Coolant Temperatures compensation Strategies
- Configurable Auxiliary outputs
- Configurable Boost Control
- Configurable data logging capability
- Closed Loop Variable Cam Control for Intake and Exhaust
- Decel Cut Strategy
- Fuel Injector Trim per Cylinder
- Fuelling Strategies
- Gear Related Strategies
- Gear Trims Strategies
- Idle Control Strategies
- Ignition Trim per Cylinder
- Internal or external map sensor
- Knock Strategies
- Closed-Loop Quad Variable 3D Cam Control w/ Dual Maps 32 by 32 grid styled (VTC/AVCS/VVTi/Vanos)
- Launch and Flat-shifting Control
- Password Protection
- Fuel Strategies for the street
- Safety strategies for Fuel, Ignition and EGT's
- Support for AIM Sport dashboards and Dashdaq Dashboards
- Turbo Timer
- Traction Control
- True Rally (Grp N) Antilag Capabilities
- User Logic Feature (OR, AND, ANDOR)

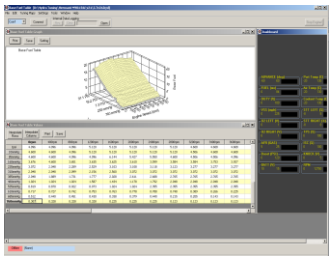
Hydra Nemesis 2.7 EMS

- New Extruded Aluminium Enclosure with updated software.
- Dual 16bit 25MHz Processors
- Drive-by-Wire built-in support
- Plug and Play
- Windows programmable Software w/ Direct Serial cable Connection
- Uses All Factory Sensors
- Internal Data Logging

Advanced features
Nemesis 2.7 has many advanced features to make tuning easier and ECU performance just like stock. On the programming software end, all 3D maps can be rotated in both axes for a better viewing angle, and the colours of the map can be altered to suit the user. A change injector flow utility allows for a global change of the fuel map based on the old and new injector flows. When viewing the 2D knock threshold table, the current knocking detected by the ECU is superimposed on the curve, allowing the user to define the knocking threshold just above the background noise. If the knock background noise becomes excessive at high rpm (it often does), then the feedback will show this and the threshold can be set above this noise at only the rpm where it occurs.

The Nemesis 2.7 ECU has both short and long term trim for the narrow band closed loop system. If the ECU must consistently add or subtract more than 8% fuel from the base value in order to reach 14.7 AFR, then the long term trim table can 'learn' this tendency and correct for it for the duration of the drive cycle.

The Nemesis 2.7 also has factory like features such as flashing check engine light diagnostics for conditions such as lean under load, excessive knock and barometer out of range. A flashing check engine light can alert the user to a potential problem before it causes driving problems or engine damage.



Hardware
Auxiliary outputs: 14

Ignition:
Igniter signals are fully sequential 5V ignition triggers.

Auxiliary inputs: 10

Injectors:
The Nemesis 2.7 is capable of running cars up to 8 Cylinders sequentially.
Injection modes are sequential, batch fire and throttle body injection.
When not used for injection, outputs 2 - 8 can be used for staged injection or general purpose switching, and outputs 2 - 5 can be used for PWM control.

Nemesis 2.7 Hardware Specifications

Injectors

The Nemesis 2.7 is capable of running cars up to 8 Cylinders sequentially. Injection modes are sequential, batch fire and throttle body injection. When not used for injection, outputs 2 - 8 can be used for staged injection or general purpose switching. Outputs 2 - 8 can be used for PWM control. Outputs 5-8 can be used for Tachometer or DIS Ignition Control.

Ignition

Igniter signals are fully sequential 5V ignition triggers. Firing mode is positive only (voltage output to charge coil). Output options are direct fire, wasted spark and distributor signal.

Auxiliary outputs

Up to 11 general purpose switch to ground 1A current limited outputs, 3 general purpose switch to power 1A current limited outputs and 2 internal feedback outputs with various Frequencies. 5outputs have optional free-wheeling diodes for linear control of variable solenoids. All PWM channels have 33V flyback limiting.

Auxiliary Inputs

Up to 10 Auxiliary inputs*. Aux 1, 2, 3 and 4 are 0 - 5V analog or 0 - 12V digital inputs. In digital mode, the switch point is below 2.5V. Aux 5-10 are digital only inputs. Inputs 5-8 with a switch point of above 2.5V and inputs 9 and 10 with a switch point below 2.5V

*Cars with Stepper Motor Idle Control will only have 6 Inputs Total as Inputs 7-10 are configured for Stepper motor control

NTK L2H2 Wideband Closed Loop Long Term Trim

All Nemesis 2.7 ECUs have an L2H21 driver as standard equipment. There is no need to use an external uego driver module. The L2H2 , a newer more robust version of the L1H1 Sensor is a state-of-the-art Nernst Cell sensor with a rapid response and far more useful rich end output characteristics than older, non-planar sensors. Heater current is limited for a controlled warm up, and voltage limited for constant temperature.

Sensors

Analog sensor inputs are coolant temp, air temp, throttle position, twin knock sensor, twin ego sensor and on-board 3 bar map sensor. Temperature sensors can be configured for the 2 most common types, and knock sensor inputs can be amplified. 4 Additional analogue inputs can be configured for additional sensors*
Digital trigger inputs are vss, trig and sync. These inputs are magnetic reluctor, Hall effect or optical sensor compatible.

Support

Nemesis 2.7 includes many support options that make seamless plug-and-play possible, and wire in trouble free. Advanced support features include a dedicated variable speed fuel pump signal for the WRX, Honda multiplex bus support (for climate control and gauges), dedicated circuit opening relay ground signal and dedicated sensor ground connections that reduce harness ground wire splicing.

Nemesis 2.7 Specifications

- Extruded Aluminum Enclosure
- Plug and Play With 5 New stages w/ upgradeable Capabilities
- Firmware Field Upgradeable (no need to send ecu back for upgrades)
- Dual Motorola CAN Enabled Processors with Onboard CAN Bus Capability* *(Run external dashes and tune at same time and connection to our Upcoming CAN Expansion Box)*
- The 2.7 will have capability to configure for additional sensors as inputs*
- Endless combinations of 2D and 3D outputs *(Staged injection, intercooler spray, water spray, turbo timer, shift light, VTEC, fuel pump, etc...)*
- Windows programmable Software w/ Direct Serial cable Connection(including Win7)
- Uses All Factory Sensors *(Might need additional sensors, e.g.: 1990 to 1993 Miata will need air temp sensor and knock sensor)*
- Retains all factory functions *(ie. Purge, boost control, AC, Intercooler spray, Tach, etc…)*
- 256K Onboard Data logging *(does not require laptop)*
- Password Protection for Intellectual Property
- Drive By Wire Throttle control
- Fuel map 32 by 32 grid styled
- Ignition Map 32 by 32 grid styled
- Quad Variable 3D Cam Control with Dual Maps 32 by 32 grid styled *(VTC/AVCS/VVTi/Vanos)*
- Aux 3D Fuel and Ignition Map 32 by 32 Grid Styled with switched input *(For Dry NOS or Race Gas)*
- Multiple Anti-lag Fuel and Timing Maps with Switched Input**
- Idle Speed (Both Solenoid and Stepper Types and Drive by Wire Throttles)
- Multiple Starting Compensation maps
- Multiple Acceleration and Deceleration Enrichment
- Wideband O2 Air/fuel Long and Short term Control
- Continuous Closed Loop Long Term Trim Air / Fuel Correction 32 by 32 Grid Style *(requires Optional software upgrade and NTK L2H2 Wideband Oxygen Sensor)*
- Programmable Closed Loop Knock Control
- Definable Knock Control *(two setting amplification with definable threshold)* with adjustable fuel compensation.
- Check Engine Light Control
- Built-in 3 bar map sensor replaces all MAF or AFM with Speed Density for up to 45psi*(up to 75psi with optional map sensor upgrade)*
- Full Sequential Fuel injection and Ignition control for up to 8 cylinders
- Drives all types of injectors without the need of a ballast box *(peak & hold and Saturated)*
- Individual Fuel Injector Trim and Timing Trim
- Injector Phasing
- Coolant temperature and Air Temperature correction for Fuel, Timing and Boost.
- Soft-Cut and Hard-Cut Rev Limits
- Gear Correction for Fuel, Timing and Boost
- Electronic Boost Control with boost Limit
- Expanded 2-step launch control
- Backup Spark map strategy when excessive lean condition or detonation is detected
- Barometric Compensation for normally aspirated cars*(with optional 1 bar map sensor)*

**Additional Sensor Calibration and CAN Bus is enabled for Stage 5 Epsilon ECU, optional for all other 4 stages*

***May require Additional Hardware, e.g. Idle Bypass valve, etc...*