Omnitek Engineering, Corp.
1945 S Rancho Santa Fe Rd.
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Advanced Engine Management System ECM88A

ECM88A engine management system meets the performance and reliability needs of converted diesel engines, as well as dedicated Gasoline, CNG, LPG and Hydrogen engines. The ECM88A is the ideal single-system solution.

Key Benefits

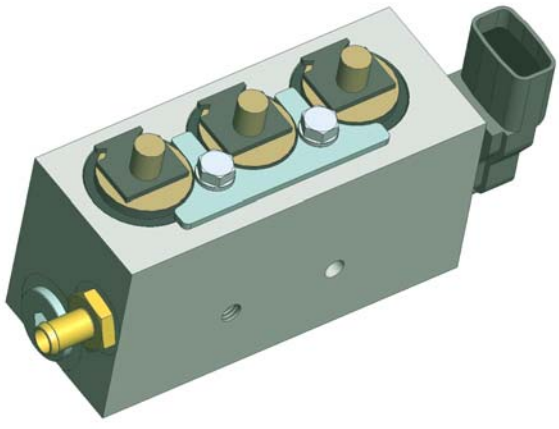
- **Three systems in one - integrated fuel, ignition and vehicle speed control**
- **Best fuel economy and range with Deceleration Fuel Cut-Off (DFCO) - stops fuel flow during gear shifting, coasting and braking**
- **Maximum power, torque and fuel economy through optimized ignition and fuel control**
- **OEM quality**
- **Versatile fleet analysis software monitors operation of your fleet**
- **Professional, experienced turnkey support**
- **Euro II, III or IV emissions standards**
- **On-Board Diagnostics (OBD)**
- **CAN Capable**
- **Gasoline, CNG, LPG or Hydrogen options**
- **4, 6, 8, 10 and 12 cylinder configurations**
- **12 or 24 Volt systems**
- **Weatherproof control module and wiring**
- **Ideal for fleet vehicles such as buses/trucks**

Key Features

- **Electronic Throttle (Drive-by-Wire)**
- **Lean-burn Control**
- **Knock Sensing**

Additional Features

- **Programmable by authorized technicians**
- **Coil per cylinder, inductive non-wasted spark ignition**
- **Active spark diagnostics with protective response logic**
- **Vehicle speed limiting capability**
- **Self-learning continually optimizes air/fuel ratio for BEST fuel economy and power**



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	Features & Specifications			Typical Function & Comments
Processor	MC9S12X-series Motorola Processor		16bit @ 40 MHz	
	Flash Memory		512 kB	• main code storage
	RAM		32 kB	• temporary data storage
	EEPROM		4 kB	• Operational data and trouble code storage
Power, Environmental & Physical	Operating Voltage			
	Nominal Operating Voltage		12 or 24 VDC, auto-sensing	
	Maximum Continuous / Short-term Voltage		32 VDC / ~ 40 VDC	
	Electrical Protection			
	Spike Protection		6600 W	• 5 x SAE standard
	Reverse Polarity Protection		Internally protected to –30V	• applies if power and ground wires are swapped
	Internal Power Supplies			
	1 x 5 V, 800 mA regulated supply			• Internal ECM usage only
	3 x 5 V, 34 mA regulated sensor supplies			• sensor supplies are independent of each other
	Environmental			
	Rated ambient temperature		-40 - +121°C	• max internal temp – lower recommended
	Enclosure		cast Aluminum	• water, chemical and RFI-resistant
	Connectors		52 pin+28 pin sealed camlock	• includes 4 high current pins
	Physical			
	Mass with enclosure		~ 1000 grams	
	Dimensions (L x W x H)		~ 185 mm x 166 mm x 37 mm	
Inputs		Analog		
	4	Inputs with pulldowns		• pressure sensors
	8	Inputs with pulldowns		• position, other sensors
	4	Dual-scale resistor pullup		• coolant temp, exhaust temp, fuel temp
		High-Speed Digital (Timer)		
	2	Variable reluctance		• crankshaft, camshaft position
	3	Digital or Hall-effect		• crankshaft, camshaft position or vehicle speed
		Standard Digital		
	6	Standard digital input		• switches and slow-speed digital devices
		Specialized		
	2	Knock sensor inputs		
	1	Universal Exhaust Gas Oxygen (UEGO) Sensor input		• lean-burn lambda control, some λ=1
	1	Stoichiometric oxygen sensor input (2 sensors if UEGO not used)		• λ=1 control, multi-bank, pre & post-catalyst
Outputs		Digital		
	2	5 A PWM output drivers		• O2 sensor heaters
	5	1 A PWM output drivers		• Solenoids, indicator lights, relays
	4	1 A standard output drivers		•
	1	Tachometer output (low current)		• One pulse per cylinder
	8	Ignition coil IGBT outputs with hardware overcurrent protection, dwell time limiting, avalanche, short circuit and low coil current protection		• Distributorless ignition
	8	Peak-and-hold PWM injector drivers: configurable peak and hold current setpoint and duration, also can be used for saturated injectors		• all common injector styles are software programmable with diagnostic monitoring
	1	Drive-By-Wire 7 A peak H-bridge driver		• electronic throttle control
	1	Stepper motor 1 A Dual H-bridge driver		• idle air control, feedback carbureted control (fuel restriction or air-bleed)
Comm	1	Controller Area Network (CAN) data bus channels		• industry standard for communication with peripherals and other control modules
	1	ISO 14230 K-Line serial		• ISO-standard diagnostic tool protocol