

## Technical Specifications

Attribute	e1280s
Physical	
Connectors	1 76 pin vehicle connector 1 USB B connector (laptop connection) 1 USB A connector (USB stick for datalogging) 1 3.5mm headphone output (for listening to knock) 1 4-pin Minidin 2 DE9 connectors for serial communications (for slave devices eg wideband oxygen sensor controllers)
Physical Dimensions (mm)	190 x 150 x 44
Mass	0.7 kg
Looms available	0.5m long (for connection to existing loom) 2.0m long (for wiring directly to engine)
Sensor Interfaces	
Crank angle sensor type	5 programmable inputs, missing tooth detection, multitooth and various others supported Reluctor and optical/Hall effect inputs, with configurable edge selection, internal pull-ups when in optical/Hall effect mode
Manifold absolute pressure input	0 - 5V, arbitrary calibration, 1/3 bar calibration supplied (requires external sensor, 5V supplied by ECU)
Air and water temp inputs	4k7 pull-up (requires separate thermistor connected to ground), multipoint linearly interpolated calibration
O2 input	2 x 0 - 1V factory narrowband, or Bosch "wideband" - input impedance 1 MOhm. Can connect 0-5V linearised sensor (eg PLX, M&W UEGO) to aux input Can connect 0-3V Zietronix sensor to analogue input Can connect M&W UEGO, TechEdge, Innovative to second serial port
Knock input	2 x High impedance input, bandpass filtered, with headphone output
Throttle position input	0-5V (5V supplied by ECU), 2-point calibration, adaptive learning
Auxiliary digital inputs	8 inputs, each configurable as active-high or active-low, pull-up or pull-down resistors, 12V tolerant inputs
Actuator Interfaces	
Number of injector drivers	12
Injector driver waveforms	Any end of injection angle (within 720 degree cycle), independent for each output 360 or 720 degree firing Additional asynchronous burst (not synchronised with engine timing)
Injector driver current	Optional constant current or peak-hold drive, selectable steady-state current of 0.5A, 0.9A, 1.5A or 1.9A. Switchmode drivers
Number ignition outputs	8
Ignition output waveforms	Any ignition angle (within 720 degree cycle), independent for each output 360 or 720 degree firing
Ignition output type	Open-collector with 470Ohm pull-up, plus series 100 Ohm resistance (allows direct connection to OEM transistor or separate igniter)
Number of auxiliary outputs	8, with push-pull & PWM on all channels. 4A sink, 1A source
Control Characteristics	
Map points	Limited only by memory - additional points can be added at any RPM or load
Load determination	VE based on TPS or MAP, with MAP correction
Injector pulse width resolution	2µs (0 - 60ms)
Ignition resolution	0.02° (-360 - +360°)
Dwell time resolution	20 µs (0 - 600ms)
Accelerator pump	Based on predicted MAP value
Fuel control strategies	Open loop, closed loop, adaptive modes
Fuel correction	Open loop, load based engine temperature, air temperature, cranking & post-crank enrich
Ignition control strategies	Open loop, closed loop, with temperature correction table for air temp and coolant temp
Idle control strategies	Open loop value vs coolant temperature Target speed vs coolant temperature Extra for electrical loads and aircon Post crank idle-up Dashpot
Calculation speed	Approximately 300Hz