

## Motronic MS 2.9.1

The MS 2.9.1 engine management system contains 12 ignition power stages and 12 independent injection power stages. All internal power stages are designed with a diagnosis interface. Various engine and chassis parameters can be measured and logged in the integrated flash card memory. Four vibration sensor inputs allow knock detection and knock control. Four independent wide range lambda circuits allow lambda closed loop engine control.



### Functionality

Injection timing  
 Ignition timing  
 Lambda control  
 Boost control (option)  
 Knock control  
 Data acquisition  
 Telemetry

### Mechanical data

Dust and waterproof aluminium housing  
 Connectors in military technology  
 Each pin individually filtered  
 Vibration damped circuit boards  
 Flexible housing fixation points  
 Size 194 x 245x 72,1 mm  
 Weight 2280 g

### Conditions for use

ECU temperature -40 ... 65°C  
 Max. power consumption 18 W at 14 V  
 Max. vibration 15 g sinus  
 at 20 Hz ... 2 kHz for t < 5 h

### Electronic data

#### In general

8 microcontrollers with 16 bit organisation,  
 calculator capacity 50 MIPS  
 Real time clock

### Inputs

4 inputs for Ni-Cr-Ni exhaust gas temperature sensors  
 4 lambda LSM 11 interfaces  
 4 inputs for inductive wheel speed sensors (Hall optional)  
 42 universal inputs 0 ... 5 V  
 6 differential inputs  $\pm 5$  V  
 1 input for inductive or Hall crankshaft sensor  
 1 input for inductive or Hall camshaft sensor  
 4 knock sensor inputs

### Outputs

All power stages short circuit protected  
 12 peak and hold injection power stages with diagnosis interface  
 12 ignition power stages with diagnoses interface  
 3 high current power stages (12 A)  
 3 sensor supply 5 V/100 mA  
 3 sensor supply 10 V/200 mA

### Communication interfaces

2 RS232 interface for telemetry and laptrigger  
 1 2-Mbaud interface for memory and data read out or high speed telemetry  
 3 CAN interfaces

### Memory

Compact Flash Card memory for data acquisition