

ECU MS 12

The MS 12 is the high-end ECU for Diesel engines. This ECU offers 12 Piezo injection power stages for use in up to a 12 cylinder engine. Various engine and chassis parameters can be measured with a high number of input channels. All measured data can be transferred via FireWire interface to an optional flash card data logger. Additional MSI 55 (Modular Sensor Interfaces) can be connected to increase the number of inputs. Gear box control strategies are optional.



Application	
Engine layout	up to 12 cyl.
Injector type	piezo injectors
Control strategy	quantity based
Injection timing	2 pilot injections 1 main injection 1 post injection
Turbo boost control (including variable VTG)	single or Bi-Turbo
Lambda measurement	✓
Traction control	✓
Launch control	✓
Gear cut for sequential gearbox	✓
Gearbox control	✓
Speed limiter	✓
Optional function packages available	
Interface to Bosch Data Logging System	
Max. vibration	Vibration profile 1 (see Appendix or www.bosch-motorsport.com)

Mechanical Data	
Aluminium housing	
5 connectors in motorsports technology with high pin density, 242 pins	
Each connector individually filtered	
Vibration damped circuit boards	
8 housing fixation points	
Size	240 x 200 x 57 mm
Weight	2,500 g
Operating temperature range	-20 ... 85 °C

Electrical Data

Power consumption without injection
approx. 5 W at 14 V

Power consumption @ 6500 rpm
max. 160 W at 14 V

Inputs

6 inputs for thermocouple sensors (e.g. exhaust gas temperature)

2 lambda interfaces LSU

4 inputs for wheel speed sensors; basic design for inductive sensors

2 gear box speed

4 inputs for turbo speed sensors; basic design for inductive sensors

2 inputs for inductive crankshaft sensor

1 input for Hall-effect camshaft sensor

3 system inputs 0 ... 5 V

16 PT1000

32 universal inputs 0 ... 5 V, switchable pullup

3 digital inputs

2 LVDT sensor interface

1 SSI interface

Outputs

12 injection power stages

24 power stages (low side)

2 power stages for lambda heater

6 H-bridges

2 sensor supply 5 V/ system use

3 sensor supply 5 V/300 mA

3 sensor supply 5 V/300 mA or 10 V/100 mA

Communication interfaces

2 K-Line serial interfaces

5 CAN interfaces (dash, application, customer use, switchable CAN load resistor)

2 firewire interfaces for external communication

Connectors

Mating connector I
AS 6-18-35 SA F 02U 000 473-01

Mating connector II
AS 6-18-35 SB F 02U 000 474-01

Mating connector III
AS 6-18-35 SC F 02U 000 475-01

Mating connector IV
AS 6-18-35 SN F 02U 000 472-01

Mating connector V
AS 6-12-35 SD F 02U 000 445-01

Piezo Specific Functions

Voltage Control

Rail pressure dependent precontrol of the voltage difference between cut off voltage and stationary actuator voltage.

Closed-loop voltage control, injector individual.

Voltage precontrol to improve dynamic behavior.

Discharging Time Control

Voltage dependent precontrol of discharging current.

Closed-loop discharging time control, injector individual.

Discharging time precontrol to improve dynamic behavior.

IVA Injector Voltage Adjustment

Determination of injector voltage demand at reference rail pressure during injector inspection in plant before IQA-measurement.

Injector assignment of voltage setpoint curves within the ECU according to injector's IVA class.

Temperature Compensation

Determination of the temperature dependent changes of voltage demand.

Definition of a temperature dependent correction factor.

Multiplicative correction of the voltage setpoint.

Software

WinDarab Analysis Software on request

Accessories

Data logger C 55

Modular Sensor Interface MSI 55

Display DDU 4

Display DDU 6

Application Hints

Internal battery for data preservation included.

Required service interval 12 months (internal battery is replaced).

Depending on your experiences with calibration of Diesel ECUs we recommend calibration support from Bosch Motorsport.

Part Number

MS 12 Piezo injector on request