ECU MS 5.2

The MS 5.2 engine control unit manages gasoline engines up to 12 cylinders. As a member of our MS 5 family, it features a powerful digital processing core with floating point arithmetic and a high-end FPGA for ultimate performance and flexibility. The MS 5 family utilizes a new software development process based on Matlab® & Simulink®. It significantly speeds algorithm development by using automatic code and documentation generation. Custom functions can be quickly and easily generated. The flexible hardware design allows the MS 5.2 to support complex or unusual engine or chassis configurations.

Application	
Engine layout	up to 12 cylinders, 2 bank
Control strategy	torque-structure based
Lambda control	with adaptation function
Speed limiter	✓
Gear cut for sequential gear box	✓
Map switch (3 positions - each corresponds to different target lambda and spark maps)	✓
Fuel cut off	✓
Turbo boost control	✓
Knock control	✓
Electronic throttle control	✓
Traction control	✓
Sequential fuel injection	✓
Asymmetric injection timing	optional
Asymmetric ignition timing	optional
Calibration interface	CCP via CAN or XCP via Ethernet
Interface to Bosch Data Logging System	
Max. Vibration	Vibration Profile 1 (see Appendix or www.bosch-motorsport.com)

Mechanical Data	
Dust and waterproof aluminium housing	
4 high pin density motorsport connectors	
220 pins, each pin individually filtered	
Vibration resistant circuit board mounting	
Size	200 x 170 x 36.5 mm
Weight (approx.)	1,260 g
Temp. range (at internal sensors)	-20 ... 85 °C

Connectors	
Mating connector I AS 6-16-35 SA	F 02U 000 467-01
Mating connector II AS 6-16-35 SB	F 02U 000 468-01
Mating connector III AS 6-16-35 SC	F 02U 000 469-01
Mating connector IIII AS 6-16-35 SN	F 02U 000 466-01

Software	
Modas Sport Calibration Software	inclusive
WinDarab Analysis Software	on request

Electrical Data	
Power cons. (w/o loads)	approx. 10 W at 14 V
Power Supply	
Operating range	6.5 ... 18 V
Recommended	11 ... 14 V
Absolute maximum	6 ... 24 V
Inputs	
2 thermocouple exhaust gas temperature sensors	
2 lambda interfaces (LSU 4.9)	
1 crankshaft sensor (2-wire, inductive or Hall-effect)	
1 camshaft sensor (2-wire, inductive or Hall-effect)	
2 turbo speed sensors (2-wire, inductive or Hall-effect)	
4 wheel speed sensors (inductive or Hall-effect)	
2 gearbox speed sensors (inductive or Hall-effect)	
45 universal analog inputs 0 ... 5 V, 12 Bit	
14 analog inputs (angle synchronous or time synchronous triggering up to 250 ksps, 12 Bit)	
4 inputs for vibration knock sensors	
1 laptrigger input	
Outputs	
12 injection power stages (peak & hold)	
12 ignition power stages (up to 20 A)	
16 power stages (2 A; low side; PWM)	
4 power stages (4 A; low side; PWM)	
4 H-bridge valve drivers (± 100 mA)	
2 H-bridges (5 A)	
3 sensor supplies 5 V/400 mA and 1x 10 V/100 mA	
6 diagnostic outputs with selectable internal signals	
12 outputs with configurable function (FPGA)	
1 timebase reference synch-in/out	
Communication interfaces	
2 x 100 Mbps Ethernet interfaces	
1 x RS232 serial interface	
4 x 1 Mbps CAN interfaces	

Application Hints
Internal battery for data preservation included.
Required service interval 12 months (internal battery is replaced).
Depending on your experiences with calibration of ECUs we recommend calibration support from Bosch Motorsport.

Part Number	
MS 5.2	**F 01T A20 069-01**