

Engine Control Unit MS 5.2

www.bosch-motorsport.com



- ▶ 12 injection output stages
- ▶ 12 ignition output stages
- ▶ 78 data inputs

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, which 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	Max. 12 cyl., 2 bank
Control strategy	Torque structure based
Lambda control	With adaptation function
Speed limiter	
Gear cut for sequential gear box	
Map switch corresponds to 3 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)

Technical Specifications

Mechanical Data

Aluminum 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

Protection Classification	IP67 to DIN 40050, Section 9, Issue 2008
Temp. range (at internal sensors)	-20 to 85°C
Electrical Data	
Power cons. (w/o loads)	Approx. 10 W at 14 V
Power supply	
Operating range	6.5 to 18 V
Recommended	11 to 14 V
Absolute maximum	6 to 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 sensor (Inductive or Hall-effect)	
45 universal analog inputs 0 to 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 lap trigger 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	
1 sensor supply 10 V/100 mA	
6 diagnostic outputs with selectable internal signals	
12 outputs with configurable function (FPGA)	
1 time base reference synch-in/out	
Software Tools	
Modas Sport Calibration Software	Inclusive

Environment (not included)

Programming interface MSA-Box II	F 02U V00 327-03
Data logger C 60	F 02U V00 875-03
Display DDU 8	F 02U V00 873-05

Mating Connectors (not included)

Mating Connector yellow AS 6-16-35 SA	F 02U 000 467-01
Mating Connector blue AS 6-16-35 SB	F 02U 000 468-01
Mating Connector orange AS 6-16-35 SC	F 02U 000 469-01
Mating Connector red AS 6-16-35 SN	F 02U 000 466-01

Installation Notes

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.

Please remember that the mating connectors and the programming interface MSA-Box II are not included and must be ordered separately.

Communication

2 x 100 Mbps Ethernet interfaces

1 x RS232 serial interface

4 x 1 Mbps CAN interfaces

Ordering Information**Engine Control Unit MS 5.2**

Order number **F 01T A20 069-01**

Represented by:

Europe:
Bosch Engineering GmbH
Motorsport
Robert-Bosch-Allee 1
74232 Abstatt
Germany
Tel.: +49 7062 911 9101
Fax: +49 7062 911 79104
motorsport@bosch.com
www.bosch-motorsport.de

North America:
Bosch Engineering North America
Motorsport
38000 Hills Tech Drive
Farmington Hills, MI 48331-3417
United States of America
Tel.: +1 248 876 2977
Fax: +1 248 876 7373
motorsport@bosch.com
www.bosch-motorsport.com

Latin America:
Robert Bosch Ltda
Motorsport
Av Juscelino Kubitscheck de
Oliveira 11800
Zip code 81460-900
Curitiba - Parana
Brasilia
Tel.: +55 41 3341 2057
Fax: +55 41 3341 2779

Asia-Pacific:
Bosch Engineering Japan K.K.
Motorsport
18F Queen's Tower C, 2-3-5 Minato Mirai
Nishi-ku, Yokohama-shi
Kanagawa 220-6218
Japan
Tel.: +81 45 650 5610
Fax: +81 45 650 5611
www.bosch-motorsport.jp

Australia, New Zealand and South Africa:
Robert Bosch Pty. Ltd
Motorsport
1555 Centre Road
Clayton, Victoria, 3168
Australia
Tel.: +61 (3) 9541 3901
motor.sport@au.bosch.com