

Engine Control Unit MS 5.5

www.bosch-motorsport.com



- ▶ Internal 2 GB datalogger
- ▶ 8 injection output stages
- ▶ 8 ignition output stages
- ▶ 59 data inputs

The MS 5.5 engine control unit manages gasoline engines up to 8 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 5.5 to support complex or unusual engine or chassis configurations.

The MS 5.5 has an internal 2 GB logger, presenting a cost efficient and weight optimized all-in-one solution.

Application

| | |
|---|--------------------------|
| Engine layout | Max. 8 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 | |
| Internal logger 2 GB | |
| Max. Vibration | Vibration Profile 1 (see Appendix or www.bosch-motorsport.com) |

Technical Specifications

Mechanical Data

| | |
|---|-------------------|
| Aluminum housing | |
| 3 high pin density motorsport connectors | |
| 165 pins, each pin individually filtered | |
| Vibration suppression via multipoint fixed circuit boards | |
| Size | 180 x 155 x 40 mm |

| | |
|-----------------------------------|--|
| Protection Classification | IP67 to DIN 40050, Section 9, Issue 2008 |
| Weight (approx.) | 1,270 g |
| Temp. range (at internal sensors) | -20 to 65°C |

Electrical Data

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|---------------------------------|--------------|
| Approx. power cons. (w/o loads) | 13 W at 14 V |
|---------------------------------|--------------|

Power Supply

| | |
|------------------|-------------|
| Full operation | 6.5 to 18 V |
| Recommended | 11 to 14 V |
| Absolute maximum | 6 to 24 V |

Inputs

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|---|
| 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) |
| 38 universal analog inputs 0 to 5 V, 12 Bit |
| 4 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

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|---|
| 8 injection power stages |
| 8 ignition power stages (up to 20 A) |
| 20 power stages (2 A; low side; PWM) |
| 4 power stages (4 A; low side; PWM) |
| 2 H-bridges (5 A) |
| 3 sensor supplies 5 V/400 mA |
| 1 sensor supply 10 V/100 mA |
| 1 protected Ubat output 1 A |
| 6 diagnostic outputs with selectable internal signals |
| 1 time based synch-in/out |

Software Tools

| | |
|----------------------------------|------------|
| Modas Sport Calibration Software | Inclusive |
| WinDarab Analysis Software | On request |

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 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

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|----------------------------------|
| 2 x 100 Mbps Ethernet interfaces |
| 1 x RS232 serial interface |
| 3 x 1 Mbps CAN interfaces |
| 1 x LIN interface |

Ordering Information

Engine Control Unit MS 5.5
Order number **F 02U V00 285-04**

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