

SERIAL DATA STREAM SAMPLE SM3 / SM4 / WRX01 / EVO IX v 1.09

rev 07 Jan 2015

This is 4 packets of SM4 v1.09 data.

Data is in Hexadecimal and Ignition timing calculates as negative (retarded).

User select channels in this example are Oil temperature, Traction control slip, Gear, Boost setpoint.

User select channel scaling depends on variable type.

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00000000: 24 30 69 05 64 03 4A 02 | 04 01 00 00 DA 02 EC 03
00000010: 32 03 30 01 E5 0B 7B 05 | 28 01 00 00 04 02 04 02
00000020: 02 00 02 00 2E 1B FA F2 | 20 00 8A 02 F5 03 03 00
00000030: D1 06 F6 1D 24 30 69 05 | 64 03 49 02 04 01 00 00
00000040: DA 02 EC 03 31 03 30 01 | E6 0B 7B 05 28 01 00 00
00000050: 04 02 04 02 02 00 02 00 | 25 1B FA F2 20 00 8A 02
00000060: F5 03 03 00 D1 06 F6 27 | 24 30 69 05 64 03 49 02
00000070: 06 01 00 00 DA 02 EC 03 | 32 03 30 01 E6 0B 7B 05
00000080: 28 01 00 00 04 02 04 02 | 02 00 02 00 31 1B FA F2
00000090: 20 00 8A 02 E8 03 03 00 | D1 06 F6 25 24 30 69 05
000000a0: 64 03 4A 02 06 01 00 00 | DA 02 EC 03 31 03 30 01
000000b0: E6 0B 7B 05 28 01 00 00 | 04 02 04 02 02 00 02 00
000000c0: 23 1B FA F2 20 00 8A 02 | E8 03 03 00 D1 06 F6 33
```

(NOTE: Data bytes are low byte first, Checksum is high byte first)

Byte 1 = 24 which is the Packet Identifier

Byte 2 = 30 which is 48 decimal and is the number of bytes of data

Byte 3 = 69 which is the low byte of Battery voltage

Byte 4 = 05 which is the high byte of Battery voltage

Battery volts = 0569 Hex = 1385 Decimal = 13.85v

Bytes 6&5 = 0364 Hex = 868D = 86.8 degC Coolant temperature

Bytes 8&7 = 024A Hex = 586D = 58.6 degC Charge temperature

Bytes 10&9 = 0104 Hex = 260D = 26.0 degC Intake Air temperature

Bytes 12&11 = 0000 Hex = 0D = 0 speed

Bytes 14&13 = 02DA Hex = 730D = 73.0 Km/H Vehicle speed

Bytes 16&15 = 03EC Hex = 1004D = 100.4 kpa Exhaust Back pressure

Bytes 18&17 = 0332 Hex = 818D = 81.8 kpa Manifold Absolute pressure

Bytes 20&19 = 0130 Hex = 304D = 30.4% Throttle position

Bytes 22&21 = 0BE5 Hex = 3045D = 3045 RPM Engine speed

Bytes 24&23 = 057B Hex = 1403D = 14.03 Air Fuel Ratio

Bytes 26&25 = 0128 Hex = 296D = $296 \times 0.3516 = 104.1$ deg Cam Angle 1

Bytes 28&27 = 0000 Hex = 0D = $0 \times 0.3516 = 0$ deg Cam Angle 2

Bytes 30&29 = 0204 Hex = Error (Instant) bit 9 and bit 2 set

(Bit 9 = Sync input missing error, Bit 2 = Throttle position sensor error)

Bytes 32&31 = 0204 Hex Undefined data

Bytes 34&33 = 0002 Hex = Error (Instant) bit 17 set

(Bit 17 = Knock hardware error)

Bytes 36&35 = 0002 Hex Undefined data

Bytes 38&37 = 1B2E Hex = 6958D = $6958 \times 0.8 = 5566.4$ usec = 5.566 msec Injection time

Byte 39 = FA Hex = $-(6 \text{ Hex } 2\text{'s Complement}) = -6D = -6 \times 0.5 = -3.0$ deg Ignition 1 timing

Byte 40 = F2 Hex = $-(E \text{ Hex } 2\text{'s Complement}) = -14D = -14 \times 0.5 = -7.0$ deg Ignition 2 timing

Byte 41 = 20 Hex = $32D = 32 \times 0.25 = 8$ deg Knock Maximum ignition retard

Byte 42 = 00 Hex Undefined data

Bytes 44&43 = 028A Hex = 650D = 65.0 deg (User select Channel 1 = Oil Temperature)

Bytes 46&45 = 03F5 Hex = 1013D = 10.13% (User select Channel 2 = Traction control slip %)

Bytes 48&47 = 0003 Hex = 3D + 1 (scaling factor for Gear) = 4th gear (User select Channel 3 = Gear)

Bytes 50&49 = 06D1 Hex = 1745D = 174.5 kpa Boost setpoint (User select Channel 4 = Boost setpoint)

Bytes 51&52 = F61D Hex = Checksum