

SERIAL DATA STREAM PROTOCOL

SM2 v1.91, 1.92, 1.94 & 1.99 rev 29 Aug 2016

BAUD RATE: 9600 baud
PROTOCOL: RS232 Async, 10 bits, comprising 1 start bit, 8 data bits (LSB first) and 1 stop bit .
UPDATE RATE: 20Hz

- Notes:**
1. Data uses INTEL byte ordering (low byte first)
 2. Checksum uses MOTOROLA byte ordering (high byte first)
- CHECKSUM (16 bit) = -(DATA LENGTH + \sum data bytes)

BYTE NO.	SIZE	TYPE	DESCRIPTION	SCALING
1	8 bit		PACKET I.D. = 24 hex (36 decimal)	ASCII "\$"
2	8 bit	unsigned	DATA LENGTH = 19 hex (25 decimal)	No. data bytes
3-4	16 bit	signed	BATTERY VOLTAGE	1 count = 0.01 volts
5-6	16 bit	signed	COOLANT TEMP	1 count = 0.1 degC
7-8	16 bit	signed	CHARGE TEMP	1 count = 0.1 degC
9-10	16 bit	signed	INTAKE TEMP	1 count = 0.1 degC
11-12	16 bit	signed	DRIVEN WHEEL SPEED	1 count = 0.1 KPH
13-14	16 bit	signed	VEHICLE SPEED	1 count = 0.1 KPH
15-16	16 bit	signed	EXHAUST BACK PRESSURE	1 count = 0.1 kPa ABSOLUTE
17-18	16 bit	signed	MANIFOLD ABS PRESS	1 count = 0.1 kPa ABSOLUTE
19-20	16 bit	signed	THROTTLE POSN	1 count = 0.1%
21-22	16 bit	signed	ENGINE SPEED	1 count = 1 RPM
23-24	16 bit	signed	AF RATIO	1 count = 0.01 A/F
25-26	16 bit	unsigned	INJECTION TIME	1 count = 1 uSEC
27	8 bit	signed	IGNITION ANGLE	1 count = 0.5 deg
28-29	16 bit	unsigned	DATA CHECKSUM (note 2)	