

Overview

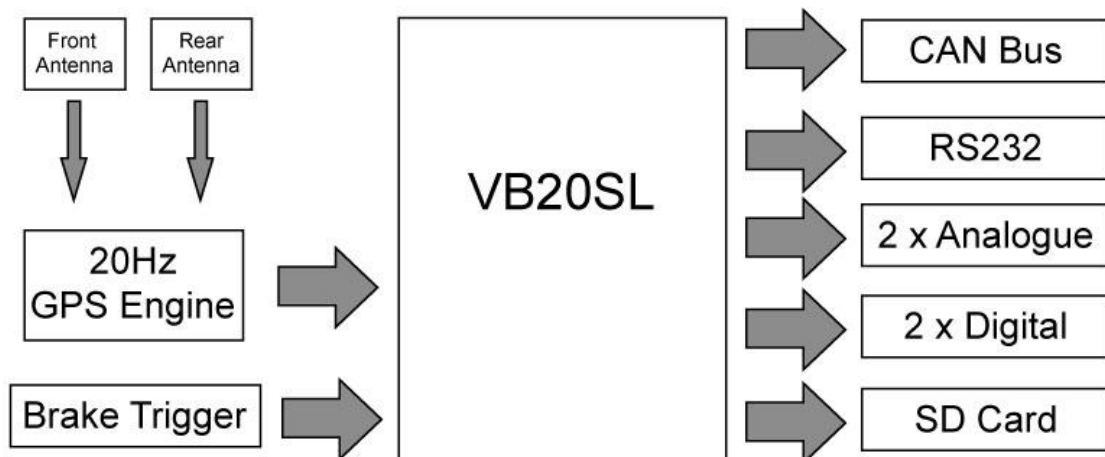
The VBOX is a powerful instrument used for measuring the speed, position and angle of a moving vehicle. It is based on a new generation of high performance satellite receivers, and will measure acceleration figures, braking distances, lap times, cornering forces, slip angle and much more.

Due to the small size and simple installation procedure with built-in configuration screen, the VBOX is ideally suited for use in cars, bikes, off road vehicles and boats.

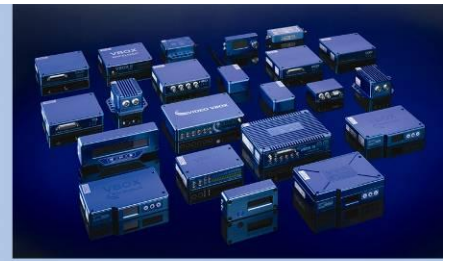


Features

- Non-contact speed and distance measurement using GPS
- Slip Angle, Yaw Rate, True heading, Lateral Velocity and either one of Pitch or Roll Angle
- CAN Bus interface for connection to VBOX input modules
- USB Interface
- RS-232 serial interface
- SD Card support
- 2 x Analogue speed, slip and pitch/roll outputs
- 2 x Digital speed, slip and pitch/roll outputs
- Digital input/output
- OLED Screen display
- Front panel configuration
- Logging of up to 20 data channels, in addition to 13 standard GPS channels



VBOX 20Hz Datalogger with Slip Angle



Specification

Velocity

Accuracy	0.1 Km/h (averaged over 4 samples)	
Units	Km/h or Mph	
Update rate	20 Hz	
Maximum velocity	1000 Mph	
Minimum velocity	0.1 Km/h	
Resolution	0.01 Km/h	
Latency	30.5ms (31.5ms when using twin antennas)	

Distance

Accuracy	0.05% (<50cm per Km)	
Units	Metres / Feet	
Update rate	20Hz	
Resolution	1cm	
Height accuracy	6 Metres	95% CEP**
Height accuracy with DGPS	2 Metres	95% CEP**

Absolute Positioning

Accuracy	3m	95% CEP**
Accuracy with DGPS	1.8m	95% CEP**
Accuracy with DGPS Base station	40cm	95% CEP**
Update rate	20 Hz	
Resolution	1.85cm	

Slip Angle

Accuracy	<0.5° rms at 0.5m antenna separation <0.1° rms at 2m antenna separation
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Pitch / Roll Angle

Accuracy	<1.0° rms at 0.5m antenna separation <0.25° rms at 2m antenna separation
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YAW Rate

YAW Rate RMS noise	0.75 degrees/second***
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*** Note that for comparison, the VBOX YAW02 or IMU rate sensor has an RMS noise of 0.05 degrees per second, so it should be noted that the Slip Angle sensor calculated YAW rate is significantly noisier than a solid state sensor for yaw rate measurement.

Heading

Resolution	0.01°
Accuracy	0.1°

Time

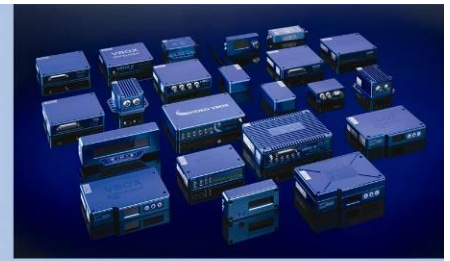
Resolution	0.01 s
Accuracy	0.01 s

Lap Time

Resolution	0.05 s
Accuracy	0.05 s

Acceleration

Accuracy	0.5%
Maximum	20 G
Resolution	0.01 G
Update rate	20Hz



Memory

External memory support
Recording time

SD Card 1
Dependant on SD capacity. Approx 12.8 megabytes per hour used while logging all GPS and slip module channels.

Outputs

CAN Bus
Bit rate

User selectable to any value – pre-defined to 125Kbit/s, 250Kbit/s, 500Kbit/s & 1Mbit/s selectable baud rate. Standard 11bit 2.0A (Default).
User definable 2.0A or 2.0B

Identifier type

Data available

Satellites in view, Latitude, Longitude, Velocity, Heading, Altitude, Vertical velocity, Distance, Longitudinal Acceleration & Lateral Acceleration, Distance from Trigger, Trigger Time, Trigger Velocity, True Heading, Slip Angle, Pitch/Roll Angle, Yaw Rate, Lateral Velocity

Analogue

Voltage range

0 to 5V DC (Velocity) / -5 to 5V DC (Slip, Pitch and Roll)

Default setting *

Accuracy

0.0125V per Km/h (0 to 400Km/h)
0.1 Km/h

Digital

Frequency range

Default setting *

Accuracy

DC to 44.4Khz
25Hz per Km/h (0 to 400Km/h)
0.01Km/h @ 100Km/h

* The range settings can be adjusted by the user, either via the front panel or in the software.

Power

Input Voltage range
Current
Power

6-30v DC
Typically 560mA
9W

Environmental and physical

Weight
Size
Operating temperature
Storage temperature

Approximately 500 grammes
154mm x 112mm (decreasing to 99mm) x 30mm
-30°C to +60°C
-40°C to +85°C

Definitions

** CEP = Circle of Error Probable

95% CEP (Circle Error Probable) means 95% of the time the position readings will fall within a circle of the stated diameter

Hardware/Software Support

One Year Hardware/Lifetime Software Support Contract.

Lifetime Software Support Contract is valid for a minimum of 5 years from the date of purchase and limited to original purchaser. Contract includes telephone/email technical support provided by local VBOX distributor and firmware/software upgrades where applicable.