



Overview

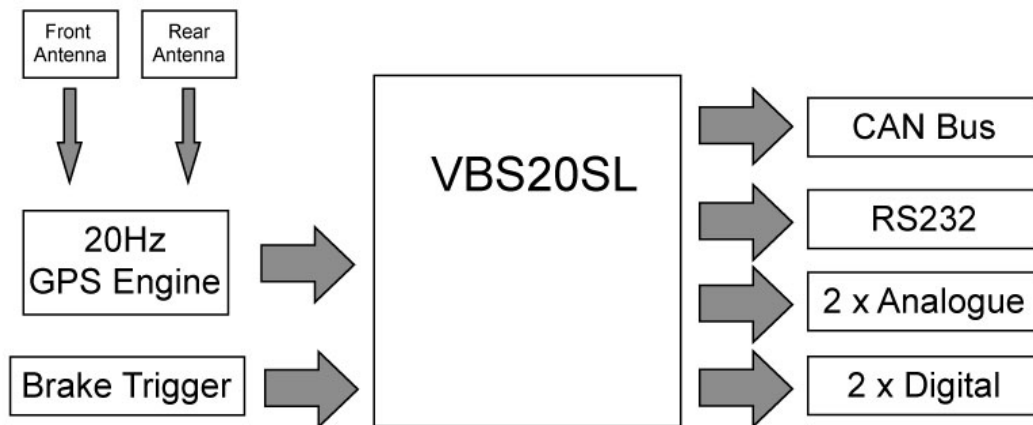
The VBS20SL is a multi-purpose non-contact speed sensor. Using an advanced dual antenna GPS engine, the VBS20SL can calculate not only speed and direction of travel of the vehicle but also an accurate slip angle. The VBS20SL also features a built-in graphic display allowing the user to set up and configure the unit without using a laptop PC.

The VBS20SL can be used in conjunction with any VBOX GPS data logger, as well as most third-party data loggers.



Features

- Non-contact 20Hz speed and distance measurement using GPS
- Slip angle, Yaw rate and True Heading measurement
- Pitch or Roll angle measurement
- 2 x 16 bit User configurable analogue outputs
- 2 x 24 bit digital outputs
- Brake / Event trigger input
- CAN bus interface for data output
- RS232 serial interface
- USB interface



VBOX 20Hz Speed Sensor with Slip Angle

Channels

- Slip Angle
- Yaw Rate (RMS noise 0.75°/s)
- Pitch or Roll Angle
- True Heading
- Lateral Velocity
- Satellites in View
- UTC Time
- Latitude
- Longitude
- Velocity
- Heading
- Altitude
- Vertical Velocity
- Distance
- Longitudinal Acceleration
- Lateral Acceleration
- Distance from Trigger
- Trigger Time
- Trigger Velocity



GPS

| | | | |
|------------------|------------------------------------|---------------------------|----------------------|
| Velocity | | Distance | |
| Accuracy | 0.1 Km/h (averaged over 4 samples) | Accuracy | 0.05% (<50cm per Km) |
| Units | Km/h or Mph | Units | Metres / Feet |
| Update rate | 20 Hz | Update rate | 20Hz |
| Maximum velocity | 1000 Mph | Resolution | 1cm |
| Minimum velocity | 0.1 Km/h | Height accuracy | 6 Metres 95% CEP** |
| Resolution | 0.01 Km/h | Height accuracy with DGPS | 2 Metres 95% CEP** |

Absolute Positioning

| | |
|--------------------|----------------|
| Accuracy | 3m 95% CEP** |
| Accuracy with DGPS | 1.8m 95% CEP** |
| Update rate | 20 Hz |
| Resolution | 1 cm |

Heading

| | |
|------------|-------|
| Resolution | 0.01° |
| Accuracy | 0.1° |

Acceleration

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

Slip Angle

| | |
|----------|----------------------------|
| Accuracy | 0.5° (0.5m ant separation) |
| | 0.25° (1m ant separation) |
| | 0.1° (2m ant separation) |

Time

| | |
|------------|--------|
| Resolution | 0.01 s |
| Accuracy | 0.01 s |

YAW Rate

| | |
|--------------------|--------------------------|
| Yaw rate RMS Noise | 0.75 degrees per second* |
|--------------------|--------------------------|

Power

| | |
|---------------------|---------------|
| Input Voltage range | 6v-30v DC |
| Power | Max 4.5 watts |

Environmental and physical

| | |
|-----------------------|----------------------|
| Weight | Approx 600 grammes |
| Size | 170mm x 121mm x 41mm |
| Operating temperature | -10°C to +60°C |
| Storage temperature | -30°C to +80°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

*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.

Outputs

| | |
|-----------------|---|
| CAN Bus | |
| Bit rate | User selectable baud rate |
| Identifier type | 11bit or 29bit |
| Data available | Slip Angle, Yaw Rate, Pitch or Roll Angle, True Heading, Lateral Velocity, Satellites in View, Time, Latitude, Longitude, Velocity, Heading, Altitude, Vertical velocity, Distance, Longitudinal acceleration & lateral acceleration, Distance from trigger, Trigger time, trigger Velocity |

Analogue

| | |
|-------------------|---|
| Voltage range | -5V to +5Volts DC |
| Default setting * | Velocity 0.0125Volts per Km/h (0 to 400Km/h) |
| Accuracy | 0.1 Km/h @ 100Km/h |
| Update rate | 20Hz |

Digital

| | |
|-------------------|---|
| Frequency range | DC to 44.4Khz |
| Default setting * | 25Hz per Km/h (0 to 400Km/h) 90 pulses per metre |
| Accuracy | 0.01Km/h @ 100Km/h |
| Update rate | 20Hz |

* The range settings can be adjusted by the user in software

Inputs

Brake/Event Trigger

| | |
|------------|-----------------|
| Polarity | User selectable |
| Timer | 16bit |
| Resolution | 12µs |

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.