

Speed Sensor Range (VBSS25)



The VBOX 25 Hz Speed Sensor offers the ultimate non-contact measurement solution.

Its multi-constellation GNSS engines can receive GPS, GLONASS, Galileo and BeiDou satellites simultaneously, which improves the quality of speed, heading and position measurement in areas of poor satellite visibility.

Data output is via CAN Bus, offering easy integration with data loggers and testing applications.

The speed sensor also supports brake-trigger input and calculates MFDD (Mean Fully Developed Deceleration).

VBOX Speed Sensors are perfect for automotive testing, motorsport, marine, telematics, and data logging applications. The IP66 rating means that each unit is water and dustproof, allowing them to be used in a variety of conditions.



Features

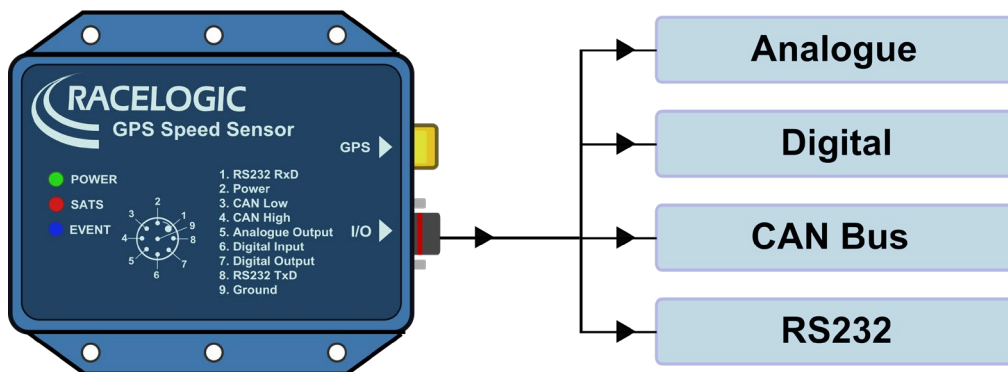
- 25 Hz multi-constellation GNSS receiver
- CAN Bus Output of position, velocity, distance, time, heading, height, vertical velocity, longitudinal and lateral acceleration, trigger to zero distance, trigger time, trigger speed, radius of turn
- RS232 serial output of NMEA, position velocity and time
- User configurable analogue + digital outputs
- Virtual Lap Beacon output
- Rugged Deutsch ASDD Autosport connector
- High quality aluminium enclosure
- IP66 rated: water + dustproof
- Wide 7 V – 30 V operating range and low current consumption
- Brake trigger input
- ISO/IEC: 17025:2017 calibrated
- Free lifetime customer support

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Interfaces

Inputs	
Input Voltage range	7 V – 30 V DC
Power	2 W Max
GNSS Antenna	3 V Active Antenna (included)
Digital Input	Set Lap beacon Position / Brake Trigger Event
LED	Power, Satellite Count, Event Out



Outputs	
CAN Bus	
Output Data Rate	125 Kbit, 250 Kbit, 500 Kbit & 1 Mbit selectable baud rate. Software controlled CAN termination.
Data available	Position, velocity, vertical velocity, heading, lateral acceleration, longitudinal acceleration, satellite count, time, radius of turn, altitude, brake stop time, brake stop distance, brake trigger velocity, DGPS status.
RS232	
Output Data Rate	Dependant on unit type and mode
Data Available	NMEA and RL Serial, dependant on unit type
Analogue	
Output Data Rate	0 to 5V DC
Data Available	Either Speed, Lateral Acceleration, Longitudinal Acceleration, or Lap Beacon
Digital Output	
Output Data Rate	Low = 0V, High = 5V, Max. frequency 4.4 KHz
Data Available	Speed or Lap Beacon

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Specifications

Velocity		Distance	
Accuracy	0.1 km/h (averaged over 4 samples)	Accuracy	0.05% (<50 cm per km)
Units	km/h or mph	Units	m/ ft
Maximum velocity	1600 km/h	Resolution	1 cm
Minimum velocity	0.1 km/h		
Resolution	0.01 km/h		
Latency	58 ms (fixed CAN latency)		
Absolute Positioning		Acceleration	
Accuracy (Standalone)	H: 2 m CEP*	Accuracy	0.50 %
Accuracy with SBAS	H: 1.3 m CEP*	Maximum	20 G
Resolution	1.85 cm	Resolution	0.01 G
Heading		Brake Distance Accuracy (Trigger Activated)	
Resolution	0.01°	Accuracy	±10 cm**
Accuracy	0.1°		

* Specifications will vary depending on the number of satellites used, obstructions, satellite geometry (PDOP), multipath effects, and atmospheric conditions. Accuracies stated to 95% CEP (Circle of Error Probable), meaning that 95% of the time the position readings will fall within a circle of the stated radius.

** Based on <50 m brake stop distance.

Supported GNSS Signals

GPS	GLONASS	Galileo	BeiDou
L1C/A (1575.42 MHz)	L1OF (1602 MHz + k* 562.5 kHz, k = -7,..., 5, 6)	E1-B/C (1575.42 MHz)	B1I (1561.098 MHz)

Environmental and Physical

Environmental and physical			
Weight	Approx. 250g	Operating temperature	-30°C to +70°C
Size	90 x 65 x 31.85 mm	Storage temperature	-40°C to +85°C
IP rating	IP66		

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Package Contents

Description	Product code
Speed Sensor unit	VBSS25
Magnetic GNSS antenna (5 m cable)	RLVBACS018
Certificate of Calibration	RLCALUKAS

Supplied separately	
VBOX Speed Sensor Interface Cable (Analogue / Digital / CAN / Serial / Power)	RLCAB093
VBOX Speed Sensor Interface Cable + 5-way Lemo socket for CAN Communication	RLCAB093-C
VBOX Speed Sensor Interface Cable + 5-way Lemo socket for Serial Communication	RLCAB093-L