Speed Sensor Range
(VBSS25-V2)

The VBOX 25 Hz Speed Sensor (V2) 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.

VBOX Speed Sensors are perfect for automotive, motorsport, marine, telematics, and data logging applications.

Data is output via CAN Bus and each unit also features RS232, and digital output for easy integration with a range of data loggers and test systems.

The IP67 rating means that each unit is water and dustproof, offering a robust solution for a variety of conditions.

Features

- 25 Hz multi-constellation GNSS receiver
- User-friendly OLED display
- CAN Bus output
- RS232 for NMEA output or connection to VBOX Test Suite
- User configurable digital output (Virtual Lap Beacon or Speed)
- ±10 cm trigger distance accuracy
- Rugged Deutsch ASDD Autosport connector
- High quality IP67 rated enclosure: water + dustproof.
- Wide 7.5 V – 30 V operating range and low current consumption
- ISO/IEC: 17025:2017 calibrated
- Free lifetime customer support

Inputs

Unit Power	
Input Voltage Range	7.5 – 30 V DC
Max Power Consumption	7.5 Watts
Nominal Power Consumption	~3.9 Watts at 12 Volt input
Digital Input	
Input Function	Brake event trigger/ track marker
RS232 Input	
Input Function	Configuration – VBOX Setup

Outputs

CAN Bus	
Output Data Rate	125 kbit/s, 250 kbit/s, 500 kbit/s & 1 Mbit/s selectable baud rate. Software controlled CAN termination.
Data available	**Outputs:** Satellite count, time, position, speed, course over ground heading, vertical velocity, longitudinal acceleration, lateral acceleration, distance, DGPS status **Results:** Trigger event time, trigger speed, start speed, end speed, deceleration test time, lap time, split time, radius of turn.
RS232	
Output Data Rate	Up to 25Hz
Data available	NMEA, Racelogic (compatible with VBOX Test Suite)
Digital	
Signal Levels	Low = 0 V, High = 5 V, Max. frequency 4.4 kHz
Output Type	Speed or Lap Beacon
GNSS Antenna Supply	
Supply Voltage	5 V DC

VBOX AUTOMOTIVE

Unit 10, Swan Business Centre, Osier Way, Buckingham, Bucks MK18 1TB, England
Tel: +44 (0)1280 823 803   Fax: +44 (0)1280 823 595   Email: vbox@racelogic.co.uk
www.vboxautomotive.co.uk

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GNSS Specifications

Velocity		Distance	
Accuracy	0.1 km/h (ø of 4 samples)	Accuracy	0.05% (<50 cm per km)
Maximum velocity	1600 km/h	Resolution	1 cm
Minimum velocity	0.5 km/h		
Resolution	0.01 km/h		
Output Latency	80 ms		
Absolute Positioning		**Acceleration**	
Accuracy with SBAS	H: 1.3 m CEP*	Accuracy	1 %
Resolution	0.00185 m	Maximum	4 G
		Resolution	0.01 G
Heading		**Brake Distance Accuracy** (Trigger Activated)	
Resolution	0.01°	Accuracy	±10 cm**
Accuracy	0.3°		

* SBAS enabled as default. 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.
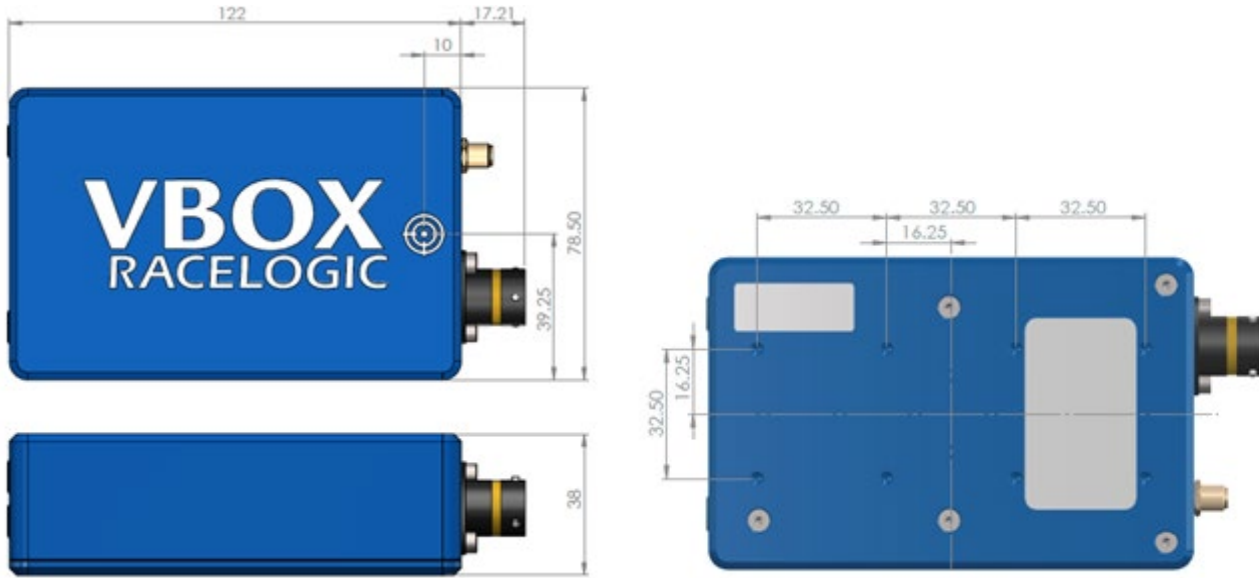
** Based on <50 m brake stop distance.

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

Physical		Environmental	
Weight	Approx. 480g	Operating temperature	-20°C to +70°C
Size	139.21 x 78.5 x 38 mm	Storage temperature	-40°C to +85°C
		IP rating	IP67

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Package Contents

Description	Product code
25 Hz Speed Sensor unit (V2)	VBSS25-V2
Magnetic GNSS antenna (5m cable)	RLVBACS018
Deutsch 23W - VBSS25 Banana Plug + 9W D-Type (1.2m cable)	RLCAB226
Certificate of Calibration	RLCALUKAS25

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Connector Pinout

Function	23-Way Deutsch Pin
Reserved	1
Reserved	2
Reserved	3
Reserved	4
Reserved	5
Reserved	6
Reserved	7
Reserved	8
CAN H Output	9
CAN L Output	10
Digital Input	11
Power Input -	12
Power Input +	13
Digital Output	14
Ground 1 (Digital Output)	15
Reserved	16
Reserved	17
RS232 Rx	18
RS232 Tx	19
Ground 2 (Digital Input)	20
Power Output 1	21
Power Output 2	22
Reserved	23

Note * combined current output capability of pins 21 & 22 is 1.85A

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