

# VBOX IISX - 20 Hz

(RLVB2SX-V3)



VBOX IISX (RLVB2SX) is a powerful data logger used for measuring the speed and position of a moving vehicle.

It uses a low-power multi-frequency, multi-GNSS receiver which simultaneously tracks GPS, GLONASS, BeiDou, and Galileo satellite signals, making it very robust and reliable in areas with obscured GPS reception.

VBOX IISX will measure acceleration, braking distances, lap times, cornering forces and more, at 20 times per second.

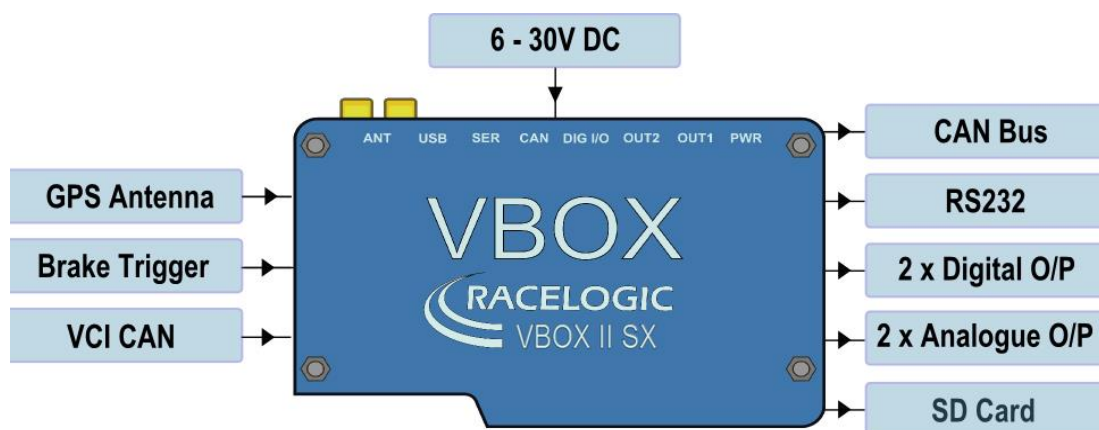
VBOX IISX features a high contrast OLED screen display and buttons for basic configuration without a PC, as well as a USB serial connection in addition to RS232. A built in CAN interface enables logging of up to 16 channels of vehicle CAN data without requiring external modules.



## Features

- Non-contact measurement using GNSS
- Multi-frequency, multi-GNSS 20 Hz receiver
- CAN interface for logging of vehicle data
- CAN Bus interface: connect to all VBOX input modules
- Logging of up to 24 data channels, in addition to up to 13 standard GPS channels
- USB and RS232 serial interface
- SD Card logging
- 2x Analogue outputs + 2x Digital outputs
- Accurate brake / event trigger input
- OLED Screen display
- Front panel configuration buttons
- Wide range of power input: 6 – 30 V DC

## Inputs/Outputs



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Inputs	Outputs
<b>GPS antenna</b> Compact magnetic mount antenna with 5m RG-174 cable, operating over GPS-GLONASS-Galileo- BeiDou L1/E1/B1 frequency bands.	<b>RS232/USB</b> RS232 connector is used for VBOX configuration and output of real-time GPS data. A USB port is also present giving the same functionality for PCs with USB sockets.
<b>CAN BUS</b> Data can be logged from external VBOX and up to 16 CAN signals can also be logged from a different CAN source (e.g., Vehicle CAN Bus). Note: Unit does not connect to other Racelogic CAN modules when in VCI CAN input is active. When logging data from another source, VBOX Test Suite can load signal data from an industry standard CAN database file (.DBC).	<b>CAN BUS</b> By utilising spare CAN Bus connections VBOX GPS can transmit data while logging readouts from external module inputs. <b>Bit rate:</b> 125 kbit/s, 250 kbit/s, 500 kbit/s & 1 Mbit/s selectable baud rate <b>Identifier type:</b> Standard 11 bit and Extended 29 bit 2.0B <b>Data available:</b> Satellites in view, UTC Time, Latitude, Longitude, Velocity, Heading, Altitude, Vertical velocity, Distance, Longitudinal & Lateral acceleration, Distance from Trigger, Trigger time, Trigger velocity
<b>Brake Trigger</b> Oversampled input for external trigger module.	<b>2x Digital Outputs</b> One digital output is assigned to speed/distance – configurable via pulses per meter. The other is a level switch output enabling users to select any one of the logged channels and assign it a threshold value. <b>Frequency range:</b> DC to 50 kHz <b>Default setting *</b> 90 pulses per metre (equates to 25 Hz per km/h from 0 to 400 km/h) <b>Accuracy:</b> 1 km/h @ 100 km/h
<b>Power Supply</b> VBOX IISX can accept a supply voltage between 6 - 30 V DC. Low current consumption results in extended battery life.	<b>2x Analogue Outputs</b> Both 16-bit analogue outputs can be configured to output velocity (or other GPS parameters) for use by additional data logging equipment. The voltage output range is from 0 - 5 V DC with a resolution of 76 µV per bit. <b>Voltage range:</b> Long ACC: -5 to +5V DC (Long & Lat ACC); 0V to +5V DC (velocity) <b>Default setting*:</b> 0.0125 Volts per km/h (0 to 400 km/h) <b>Accuracy:</b> 0.1 km/h @ 100 km/h
<b>SD card</b> Accepts most types of SD card (NOT SD HC). Recording time depends on the SD capacity and is approx. 4.4 MB/hr when logging all GPS channels.	

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

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## GPS Specifications

Velocity		Absolute Positioning (2D)	
Accuracy	0.1 km/h (averaged over 4 samples)	Accuracy	0.7 m*
Units	km/h or mph	Accuracy with SBAS	0.4 m*
Maximum velocity	1600 km/h	Accuracy with DGPS	0.3 m*
Minimum velocity	0.1 km/h		
Resolution	0.01 km/h		
Latency	41.5 ms		

Time			
Accel/ Brake Test (MFD/ VBOX Test Suite):		Lap Timing (OLED/ VBOX Test Suite):	
Resolution	0.01 s	Resolution	0.01 s
Accuracy	0.05 s	Accuracy	0.01 s**

Acceleration		Distance	
Accuracy	0.50%	Accuracy	0.05 % (<50 cm per km)
Maximum	20 G	Units	m or ft
Resolution	0.01 G	Resolution	1 cm

Heading		Brake Distance Accuracy (Trigger activated)	
Resolution	0.01°	Accuracy	± 10 cm
Accuracy	0.1°		

\*Depends on multipath environment, number of satellites in view, satellite geometry, and ionospheric activity. 95% CEP (Circle of Error Probable) means 95% of the time the position readings will fall within a circle of the stated radius.

\*\*Not using DGPS and crossing the start/finish line at 100 km/h

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## Specifications

Environmental and physical			
<b>Weight</b>	approx. 500 g	<b>Operating Temperature</b>	-30°C to +60°C
<b>Size</b>	154 x 112 (decreasing to 99) x 30 mm	<b>Storage Temperature</b>	-40°C to +85°C

Power		Memory	
Input Voltage range	6-30 V DC	<b>External memory support</b>	SD Card
Current	Typically, 560 mA	<b>Recording time</b>	Depends on SC capacity

## Hardware & Software Support

Support	
Hardware	One Year Support Contract
Software	Lifetime Support Contract: Valid for a minimum of 5 years from the date of purchase and limited to the original purchaser. Contract includes telephone/ email technical support provided by local VBOX Distributor and firmware/ software upgrades (where applicable).

## Package Contents

Description	Product Code
1x VBOX IISX 20 Hz unit	VB2SX-V3
2x Magnetic GNSS antennas (5 m cable)	RLVBACS018
1x Lemo 2 way to 12 V cigar lighter cable (2 m)	RLVBCAB10LE
1x 9-way D type to 5-way LEMO serial cable (2 m)	RLCAB001
1x USB A to USB B (2 m)	RLCAB042
1x 8 GB SD card	RLACS313
1x Mains charger with UK/US/EU/AU power lead	RLVBACS020
1x Padded carry case	RLACS106
1x Certificate of Calibration	RLCALUKAS