VBOX IISX

5 / 10 / 20 Hz GPS Data Logger

The VBOX IISX Range

VBOX IISX (RLVB2SX) is a powerful instrument used for measuring the speed and position of a moving vehicle. It is based on a new generation of high-performance satellite receivers, and will measure acceleration, braking distances, lap times, cornering forces and more.

Due to its small size and simple installation, **VBOX IISX** is ideally suited for use in cars, bikes, off road vehicles and boats.

With 5 Hz, 10 Hz, and 20 Hz GPS update rate options available, the range suits a variety of requirements and budgets. All units are compatible with the **DGPS Base Station** for positional accuracy to <20 cm.

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 GPS
- 5 / 10 / 20 Hz Update rate options
- 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

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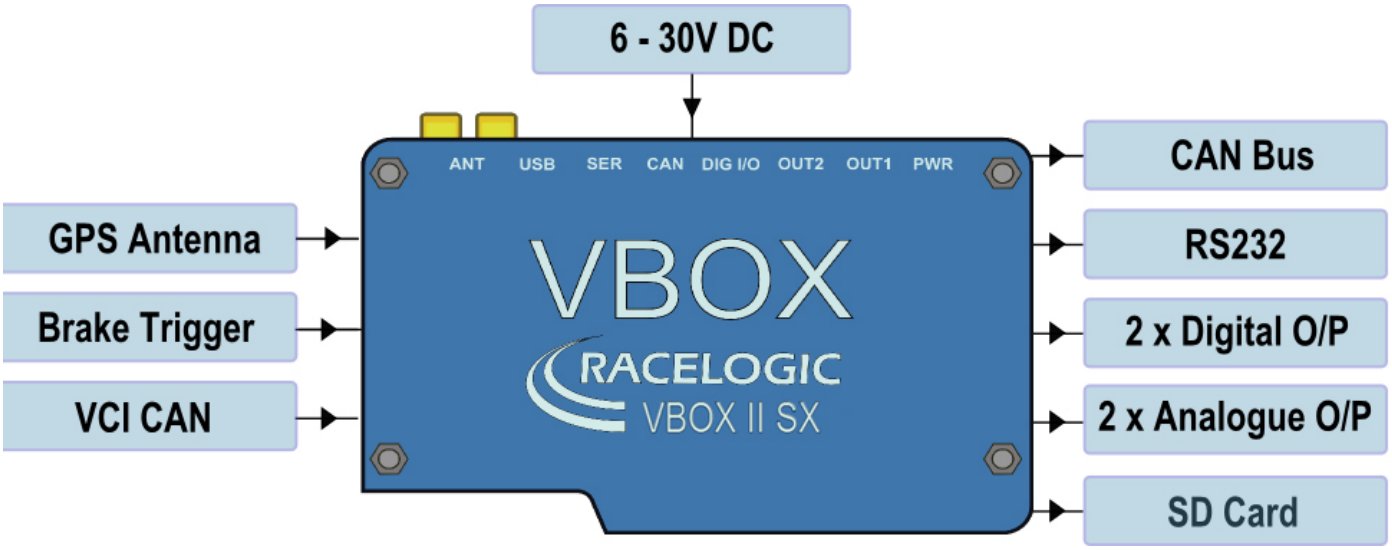
Inputs/Outputs



Inputs	Outputs
GPS antenna Available with an update rate of 20, 10 or 5 times a second.	**CAN BUS** By utilising spare CAN Bus connections VBOX GPS can transmit data while logging readouts from external module inputs. **Bit rate:** 125 kbit/s, 250 kbit/s, 500 kbit/s & 1 Mbit/s selectable baud rate **Identifier type:** Standard 11 bit and Extended 29 bit 2.0B **Data available:** Satellites in view, UTC Time, Latitude, Longitude, Velocity, Heading, Altitude, Vertical velocity, Distance, Longitudinal & Lateral acceleration, Distance from Trigger, Trigger time, Trigger velocity
CAN BUS 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).	**RS232/USB** 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 PC's with USB sockets.

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Inputs/Outputs continued…

Inputs	Outputs
Brake Trigger Oversampled input for external trigger module.	**2x Digital Outputs** 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. **Frequency range:** DC to 50 kHz **Default setting *** 90 pulses per metre (equates to 25 Hz per km/h from 0 to 400 km/h) **Accuracy:** 1 km/h @ 100 km/h
Power Supply VBOX IISX can accept a supply voltage between 6 - 30 V DC. Low current consumption results in extended battery life.	**2x Analogue Outputs** 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. **Voltage range**: Long ACC: -5 to +5V DC (Long & Lat ACC); 0V to +5V DC (velocity) **Default setting***: 0.0125 Volts per km/h (0 to 400 km/h) **Accuracy**: 0.1 km/h @ 100 km/h
SD card Accepts most types of SD card (NOT SD HC). Recording time is dependent on the SD capacity. When logging all GPS channels approx. 4.4 MB/hr (20 Hz), 2.2 MB/hr (10 Hz), or 1.1 MB/hr (5 Hz).	

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

Specifications

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

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

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GPS Specifications

These specifications refer to VBOX IISX 20 Hz (RLVB2SX), 10 Hz (RLVB2SX10) and 5 Hz (RLVB2SX5).

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 or ft
Update rate	5 Hz / 10 Hz /20 Hz	**Update rate**	5 Hz / 10 Hz /20 Hz
Maximum velocity	1000 mph	**Resolution**	1 cm
Minimum velocity	0.1 km/h		
Resolution	0.01 km/h		
Latency	41.5 ms		

Absolute Positioning (95% CEP)		Time	
Accuracy	3 m*	**Accel/ Brake Test (MFD/ VBOX Test Suite):**	
Accuracy with SBAS	<0.8 m (Europe)* <1.5 m (USA & Asia)*	**Resolution** **Accuracy**	0.01 s 0.05 s
Accuracy with DGPS	40 cm*		
Accuracy w/ local upgrade	20 cm*	**Lap Timing (OLED/ VBOX Test Suite):**	
Resolution	1 cm (5 Hz / 10 Hz)	**Resolution**	0.01 s
	1.85 mm (20 Hz)	**Accuracy**	0.01 s**
Height accuracy	6 m*		
Height accuracy w/ SBAS	2 m*		

Heading		Brake Stop Accuracy	
Resolution	0.01°	**Accuracy**	± 20 cm
Accuracy	0.1°		± 15 cm
			± 10 cm

Acceleration	
Accuracy	0.50%
Maximum	20 G
Resolution	0.01 G
Update rate	5 Hz / 10 Hz /20 Hz

* 95% CEP (Circle of Error Probable). This 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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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 5 Hz unit or 1x VBOX IISX 10 Hz unit or 1x VBOX IISX 20 Hz unit	RLVB2SX5 RLVB2SX10 RLVB2SX
2x Magnetic GPS antennas	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)	RLVBCAB001
1x USB A to USB B (2 m)	RLCAB042
1x 8 GB SD card	RLACS259
1x Mains charger with UK/US/EU/AUS power lead	RLVBACS020
1x Padded carry case	RLVBACS013

RLVB2SX5 / RLVB2SX10 / RLVB2SX20

2x RLVBACS018

RLVBACS020

RLVBCAB10L

RLVBCAB001

RLCAB042