

VBOX Marine (RLVB20SL3-M)

20Hz data logger for speed and attitude measurements



VBOX Marine (RLVB20SL3-M) is a powerful new data logging package from Racelogic, designed specifically for the marine testing environment.

Utilising a new generation of high performance, multi-antenna GPS engines, it can measure Speed, Acceleration, Position and all 3 attitude angles; Pitch, Roll and Yaw (alternatively known as Trim, Heel and Leeway).

Because these angles are measured directly, there is no drift which normally affects inertial systems in this environment.

The RLVB20SL3-M is supplied as a complete package, with the benefit of a splash proof case, for the convenient and cost-effective measurement of marine vessel dynamics.



Features

- Speed, distance, acceleration, attitude angles, position, radius of turn, yaw rate, true heading and more.
- 20Hz update rate
- Additional input modules available
- USB Interface
- RS-232 serial interface
- SD card support
- Front panel configuration using OLED screen display
- Built-in battery
- Built-in Bluetooth connection for laptop or Q3 connectivity
- CAN bus input to log engine parameters



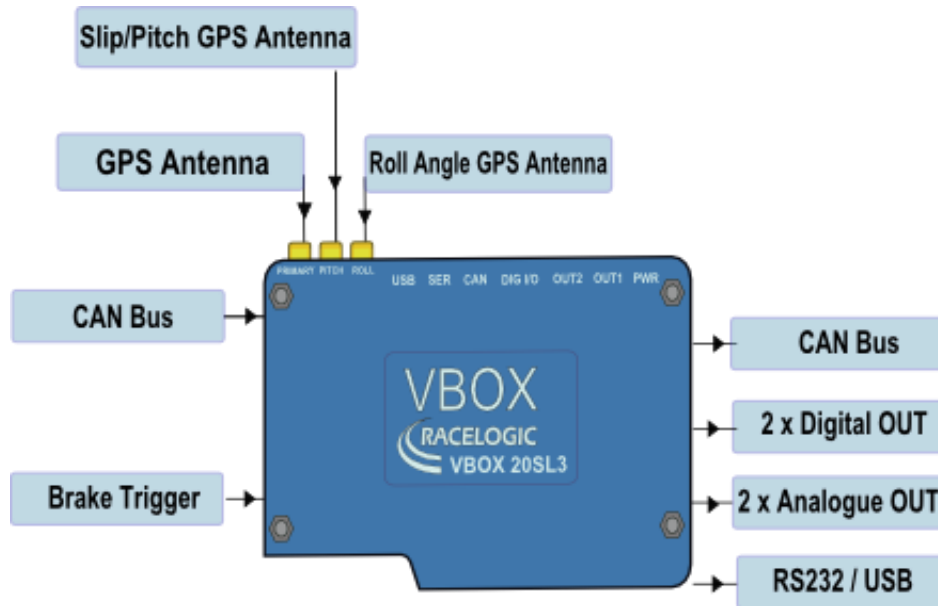
Using the wireless Q3 display (optional) for analysis of trim, heel and leeway angles

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System



Inputs	Outputs
<p>CAN BUS</p> <p>Data can be logged from external modules (e.g. TC8, FIM02). Up to 16 CAN signals can also be logged from a different CAN source (e.g. Vehicle CAN Bus). When logging data from another source, VBOX Tools can load signal data from an industry standard CAN database file (.DBC).</p>	<p>CAN BUS</p> <p>By utilising spare CAN Bus connections VBOX GPS can transmit data while logging readouts from external module inputs.</p>
<p>GPS antenna</p> <p>Primary GPS antenna providing 20Hz update rate for measurement of standard GPS parameters (Including: velocity, heading and position)</p>	<p>RS232/USB</p> <p>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.</p>
<p>Slip/Pitch GPS antenna</p> <p>Slip/Pitch GPS antenna providing 20Hz measurement of Slip/Pitch (Slip is measured at the point at which you place the main reference antenna. This can be translated to any point on the vehicle in post processing)</p>	<p>2x Analogue Outputs</p> <p>2x 16bit 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 to 5v DC with a resolution of 76 μV per bit.</p>

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<p>Roll GPS antenna</p> <p>Roll GPS antenna providing 20Hz measurement of Roll angle.</p>	<p>2x Digital Outputs</p> <p>Two digital outputs are available on VBOXII SX – Triple antenna (SL). One Digital output is assigned to Speed/Distance – configurable via Pulses per Meter. While the second is a level switch output enabling users to select any one of the logged channels and assign it a threshold value.</p>
<p>Brake Trigger</p> <p>By using a physical switch on the brake pedal, a precise ‘start of braking event’ can be captured. This is required to capture true Stopping Distance to the accuracy quoted.</p>	<p>SD card</p> <p>VB20SL3 can accept most types of SD card (NOT SD HC). Data is stored in a standard PC format allowing fast transfer of data to a PC equipped with a SD card reader. The file format is an ASCII text file that can be loaded directly into VBOX Tools software, or imported into Excel and other third party software.</p>
<p>Power Supply</p> <p>VBOX SX – Triple antenna (SL) can accept a supply voltage between 6 to 30v DC. Low current consumption results in extended battery life.</p>	
<p>VCI CAN Input</p> <p>Allows the user to log incoming CAN data from other systems such as a vehicle CAN Bus.</p>	

Specification

Absolute Positioning		Speed	
Accuracy	3m 95%CEP*	Accuracy	0.1 Kn
Accuracy with SBAS DGPS		Units	Knots
Europe (EGNOS)	80cm 95%CEP*	Update rate	20 Hz
USA (WAAS) + ASIA (MSAS)	1.5m 95%CEP*	Maximum velocity	1000 Kn
Accuracy with DGPS Base Station	40cm 95%CEP*	Minimum velocity	0.1 Kn
Update rate	20 Hz	Resolution	0.01 Kn

*= Circle of Error Probable. 95% CEP means 95% of the time the position readings will fall within a circle of the stated radius. 2cm accuracy requires an RTK option and RTK enabled Base Station.

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Leeway Angle		Trim and Heel Angle	
Accuracy	<0.1° rms at 2m antenna separation	Accuracy	<0.25° rms at 2m antenna separation
Range	+/-60°	Range	+/-60°

True Heading		Heave (vertical velocity)	
Accuracy	<0.1° rms at 2m antenna separation	Accuracy	0.2km/h
Resolution	0.01°	Resolution	0.01

Surge (longitudinal acceleration) and Sway (lateral acceleration)	
Accuracy	0.5%
Maximum	20G
Resolution	0.01G

Memory		Power	
External Memory Support	SD Card 1	Input Voltage Range	6 – 30V DC; 2 X 12v DC batteries supplied
Recording time	Dependent on SD capacity. Approx 12.8 megabytes per hour used while logging all GPS and slip module channels	Power	Max. 9 Watts

Environmental and physical			
Weight	Approx. 3kg	Storage temperature	-40°C to +85°C
Package Size	270 x 247 x 125mm	Industrial protective class	IP 64
Operating temperature	-30°C to +60°C	(with case closed)	

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).

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Package Contents

Description	Product Code
1 x VBOX 20Hz triple antenna unit	VB20SL3
1 x Case with 3 TNC connectors	SL3MARINECAS
3 x GPS ground plane antenna for marine	RLVBACS065M
1 x 2.4 GHz antenna	RLACS090
1 x VBOX Bluetooth module	VBBT01
1 x 3300 MAH 12v NIMH battery	20SL3-M-BATT
1 x Battery charger	BT03233
1 x VBOX mains charger	RLVBACS020
1 x VBOX serial PC cable with 5 pin lemo	RLCAB001
1 x USB lead A – B 20m	RLCAB042
1 x 5 way lemo to 5 way lemo – 300mm	RLCAB006
1 x lemo 2 way to 12v cigar lighter – 2m	RLCAB010L
1 x 2Gb SD card	RLACS083
1 x VBOX tools software manual	VBTOOLMANA5



RLVBACS065M



SL3MARINECAS



20SL3-M-BATT



Q3 Tablet PC (not included)

VBOX Marine is ideal for use with a Q3 display system (not supplied) – a hand held PC with Bluetooth connectivity, pre-loaded with a fully-featured tablet edition of the VBOX tools software.

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Marine vessel attitude – Trim, Heel and Leeway angles

