

Inertial Measurement Unit (RLVBIMU03)



Racelogic's IMU (RLVBIMU03) provides highly accurate measurements of velocity, pitch, roll, and yaw, using three yaw rate sensors and three accelerometers. It is a CAN based unit and is temperature compensated with improved calibration and stability.

The RLVBIMU03 is designed for use either as a stand-alone sensor with simple connection and configuration via the CAN bus interface, or for use with VBOX GPS data loggers.

When used in conjunction with VBOX 3i, data from the IMU can be seamlessly integrated with GPS to produce pitch and roll values as well as smoother, more reliable position data. This ensures premium quality GPS data even when satellite reception is interrupted.

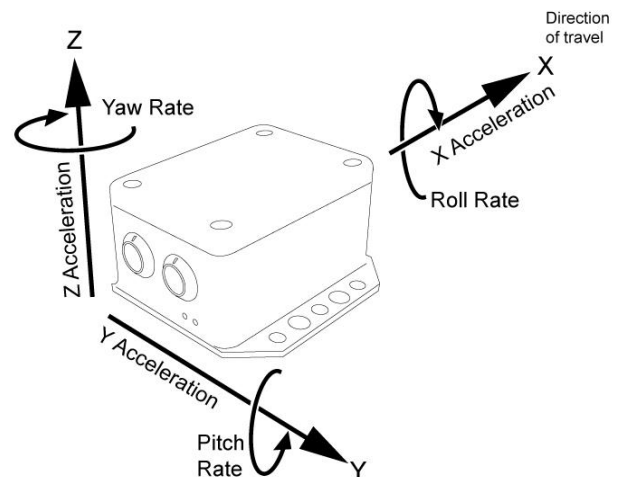


The RLVBIMU03 is constructed with a splash-proof casing, which is rated to a limited ingress IP rating of IP65, making it ideal for use on boats or in harsh environments, as well as automotive testing.

Using synchronous 24bit sampling for each of the internal sensors provides a high degree of accuracy with yaw rate resolution typically 0.01 degrees per second and acceleration resolution down to 0.001g.

Features

- Yaw rate range $\pm 150^\circ/s$
- Acceleration range $\pm 1.7g$ in each axis
- Internal temperature compensation
- Yaw rate resolution $0.01^\circ/s$
- Acceleration resolution 1mg
- CAN Bus interface
- Integration with GPS for consistent and accurate data even where satellite reception obstructed
- Splash proof: IP65 rating



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Specification

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Rate sensors	T _A =25°C
Dynamic Range	Full-Scale: ±150°/s
Non-linearity	% of full scale: 0.1%
Resolution	0.01°/s
Bandwidth	40 Hz
Bias Stability	±0.5°/s
Acceleration	
Range	±1.7G
Non-linearity	% of full scale: (Min) ±0.5% - (Max) ±2.5
Resolution	1mg
Accuracy	0G-input: ±0.03G
Accuracy	1G-input: ±0.01G
Bandwidth	50 Hz
Max Ratings (Shock)	Powered (0.5 ms): 2000 g
Temperature Sensor	
Temperature calibration range	-10°C to 50°C
Temperature resolution	0.1°C
Current	~150 mA
Voltage	8 – 30 V DC.
Operating temperature	-30 to +70 °C

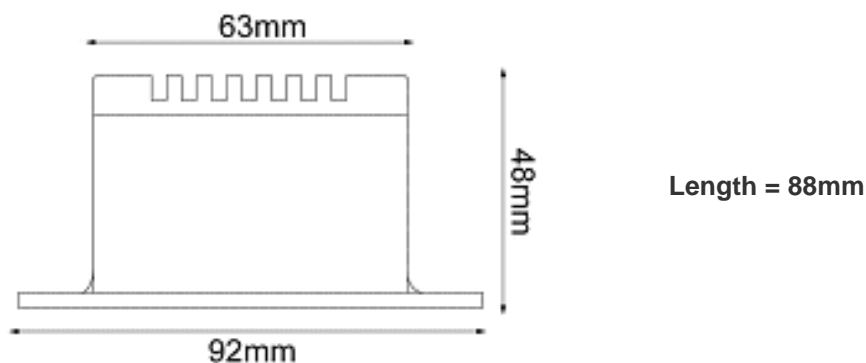
Outputs

Outputs	
Number of Channels	7
Channel Names	Yaw Rate, Pitch Rate, Roll Rate, X Acceleration, Y Acceleration, Z Acceleration, Temp

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Dimensions



Lemo Socket Connections

Pin	I/O	Function
1	O	TxD, Serial Data Transmit - Configuration
2	I	RxD, Serial Data Receive - Configuration
3	I/O	CAN High
4	I/O	CAN Low
5	O	+ V Power 8V to 30V DC
Chassis		Ground

