

# VBOX 3i ADAS

(RLVB3i-ADAS)



VBOX 3i ADAS has been specifically designed to provide flexible and intuitive test configuration options exclusively for ADAS testing.

Its multi-constellation and dual-frequency GNSS engine delivers outstanding RTK signal reacquisition and resilience, whilst the redesigned software allows for efficient test configuration and intuitive data analysis.

The vehicle under test can simultaneously reference any combination of up to three moving targets, two static targets, three road-line references and 99 signposts.

This expanded capability enables the evaluation of complex ADAS scenarios with full flexibility to customise the test set up.

Tests requiring multi-target and multi-lanes can be easily configured to validate ADAS systems.

RTK correction data can be acquired using an VBOX RTK DGPS Base Station or an NTRIP Modem (must be purchased separately).



## Features

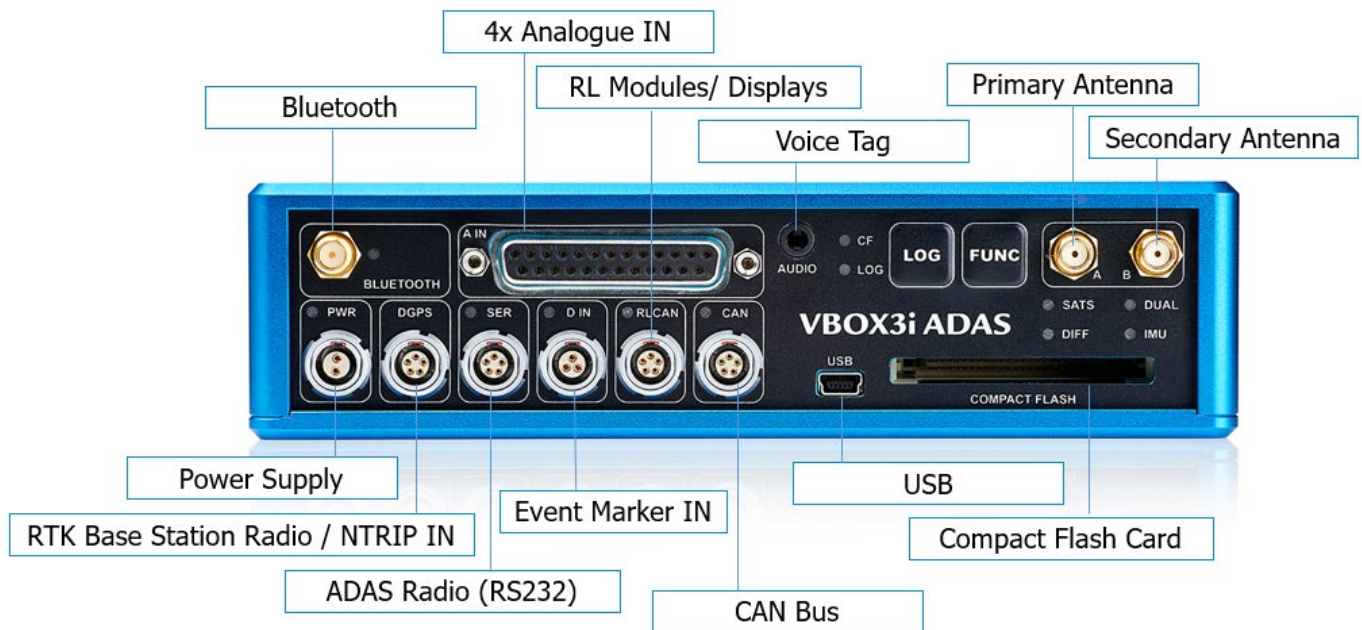
- Centimetre-level positional accuracy with an RTK Base Station or NTRIP Modem
- Resilient RTK lock using GPS/GLONASS/GALILEO/BeiDou satellites
- 4 x 24-bit differential analogue input channels with  $\pm 50$  V input range and synchronous capture
- Oversampled event input
- RS232 serial, USB & Bluetooth interface
- Audio voice tagging (microphone included)
- Data logged to compact flash memory card
- User configurable logging conditions
- Dedicated DGPS and ADAS radio ports
- Wide 7 V to 30 V operating range
- Low current consumption
- 2 x CAN Bus interface for data input & output
- Free lifetime support

# VBOX 3i ADAS

(RLVB3i-ADAS)



## Interfaces



## A/B Antennas

- Utilising two GNSS antennas allows an accurate, non-drift measurement of vehicle body heading. VBOX 3i ADAS uses dual antenna to project vehicle offset points and to produce accurate, low noise ADAS measurements.

## A IN - 4x Analogue Input

- Each of the four Analogue Input channels on a VBOX 3i ADAS has a dedicated analogue converter. Data is recorded from each channel simultaneously to avoid latency between analogue channel data. The name, scale and offset of each Analogue Input channel can be adjusted using VBOX Test Suite software to allow sensor calibration and therefore logging of data in standard SI units.

The Analogue Input connector also provides two power outputs that may be used for driving sensors. These are in the form of a 5 V DC isolated supply and an output equal to the VBOX power supply voltage.

Input range	±50 V
Channel Sample Order	Synchronous
DC Accuracy	± 2 mV (calibrated at 23°C)

## AUDIO - Voice Tagging

- VBOX 3i ADAS can record a GPS synchronised WAV audio tag up to 30 seconds long to a time accuracy of 0.5 sec. The recorded WAV file is then logged to the CF card.

# VBOX 3i ADAS

(RLVB3i-ADAS)



## BLUETOOTH

- VBOX 3i ADAS comes equipped with an internal Bluetooth Radio allowing remote configuration and remote output of real-time GNSS data to any Bluetooth capable PC or data logger. The Bluetooth connection can send data at the full 100 Hz rate.

## CAN - External CAN Bus

- The CAN port can be used to send VBOX data via CAN or to log up to 32 channels of user defined CAN signals e.g., from the Vehicle CAN bus.

<b>Bit rate</b>	125 Kbits, 250 Kbits ,500 Kbits & 1 Mbit selectable baud rate
<b>Identifier type</b>	Standard 11-bit 2.0 A

## COMPACT FLASH

- Data is stored as a .vbb file format to a compact flash card. The file can then be loaded directly into VBOX Test Suite software for post-process analysis.

## DGPS - Base Station Radio/ NTRIP Input

- A dedicated port for RTK input, either from a radio or NTRIP modem allowing the VBOX3i ADAS to achieve sub centimetre positional accuracy.

## DIN - Event Marker Input

- A digital signal, such as one from RACELOGIC's Light or Audio detector, can be used to accurately capture when events such as warning lights or sounds occur.

## PWR - Power Supply

- VBOX 3i ADAS can accept a supply voltage between 7 to 30 V DC. Low current consumption results in extended battery life.

## RLCAN - RACELOGIC Modules

- The RL CAN port is used for connection of RACELOGIC displays such as MFD Touch and VBOX Manager. The port can also be used to log up to 32 RL Module channels such as ADC03, FIM03, TC8, or IMU04.

## SER - ADAS Radio (RS232)

- A dedicated serial port for the connection of a VBOX Telemetry system that allows ADAS data to be sent between vehicles.

## USB

- The USB connector can be used for VBOX configuration and to output real-time data at 100 Hz.

# VBOX 3i ADAS

(RLVB3i-ADAS)



## GPS Specifications

Absolute Positioning (RMS)		Velocity	
Accuracy* (Standalone)	V: 1.9 m; H: 1.2 m	Accuracy	0.03m/s (RMS)
Accuracy* with SBAS	V: 0.8 m; H: 0.6 m	Update rate	100 Hz
Accuracy* with DGPS	V: 0.7 m; H: 0.4 m	Resolution	0.01 km/h
Accuracy* with RTK	V: 1 cm + 1 ppm; H: 0.6 cm + 0.5 ppm	Latency	
Update rate	100 Hz	Fixed CAN delay, with IMU integration	20 ms
Resolution	1.8 mm		

Heading		Distance	
Resolution	0.01°	Accuracy	0.05 % (<50 cm per km)
Accuracy	0.1°	Update rate	100 Hz
		Resolution	1 cm

Memory		Power	
Compact Flash	Type I	Input Voltage Range	7 – 30 V DC
Recording time	Dependent on flash card capacity***	Power	Max. 5.5 Watts

Environmental and physical			
Weight	Approx. 900 g		
Size	170 x 121 x 41 mm		
Operating temperature	-20°C to +70°C		
Storage temperature	-30°C to +80°C		

\* Specifications will vary depending on the number of satellites used, obstructions, satellite geometry (PDOP), multipath effects, and atmospheric conditions. For maximum system accuracy, always follow best practices for GNSS data collection.

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

\*\*\* Approximately 29 MB per hour used when logging GPS data at 100 Hz. Approx. 182 MB per hour total logging capacity.

# VBOX 3i ADAS

(RLVB3i-ADAS)



## Package Contents

Description	Product Code
1x VBOX 3i ADAS unit	VB3i-ADAS-V1
1x VBOX Manager	VBFMAN
1x Mains Power Supply	RLVBACS020
2x Dual Band GNSS antenna (4 m removable cable)	RLACS324
2x Spare antenna cable	RLCAB080-4
1x 4 GB Compact Flash Card	RLACS098
1x VBOX Serial PC cable (5-way LEMO to 9-way D-type serial cable – 2 m)	RLCAB001
1x VBOX 3i Bluetooth Antenna	RLACS119
1x VBOX 3i Audio Headset	RLACS120
1x 25-way D-type connector	ADC25IPCON
1x USB 'A' to Mini 'B' 2m cable (USB Configuration)	RLCAB066-2
1x 2-way LEMO power lead to 12V cigar lighter – 2m	RLCAB010LE
1x USB multi card reader	RLACS163
1x VBOX to VBOX Module power cable (5-Way Lemo to 5-Way Lemo) – 2m	RLCAB005-C
1x VBOX Padded carry case	RLVBACS013
1x Certificate of Calibration – UKAS Accredited	RLCALUKAS

### Optional:

- RTK Base Station (RLVBBS6) and telemetry radios (RLRTMXB2BS, RLRTMXB2)
- NTRIP Modem (RLVBNTRIPMDM)
- Dual Antenna Roof Mounting Pole (RLACS171)