www.Race-Technology.com
Strelley Hall, Main Street, Strelley, Nottingham, NG8 6PE.

VOB - data over Video Overlay Box

- Real time data overlayed onto video, both PAL and NTSC versions available
- Real time lap and sector times without a track side optical beacon
- User configurable display, with up to four screens of data (max 16 values per screen)
- Compatible with the DL2, DL1, AX22 and SPEEDBOX products

What is the VOB?

The VOB is an optional “black box” module that works in conjunction with all our data logging products. It enables data to be overlayed onto a live video stream. The overlayed data can be either in the form of numbers, bar graphs, or a combination of the two. The data that is displayed as well as the format is controlled from a PC - just as it is for the DASH1. Warnings for high and low values on any channels are also displayed on the data, as well as sector times (hardware

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permitting). Characters are displayed as white text with a thin black outline, making them easily readable whatever background is present.

Who is the VOB designed for?

The VOB can be used as a simple data analysis tool for improving car or driver performance, in just the same way as a traditional data logger. The video information is an excellent way of presenting information in a very intuitive way and requires almost no skills from the end user. It enables easy checking of lap and sector times without the use of a computer for analysis. Typical applications include racing driving schools, driving experience days and presenting data in industrial applications.

What does the VOB do?

The VOB takes a standard serial stream from any of the Race Technology product range and overlays selected data onto a composite video signal. Typically, the video signal will be from a bullet camera mounted in the car, and recorded onto a portable video camera or a portable video recorder. The video stream can be either PAL or NTSC (must be specified at the time of ordering). The VOB can only be used in conjunction with our other data logging products to act as a source for the data; it can't be used as a standalone device. The VOB can be powered either from the logging device, or where this is not possible, through an external 12V input.

Up to 16 variables can be displayed on the screen at the same time. In addition to these variables, all data is monitored against high and low limits, with warnings being displayed when these limits are exceeded. There is also a lap-timing feature, which will give sector and lap times along with a comparison to the best sector and lap time.

The VOB can be reprogrammed through the DL1 or DL2 making future upgrades and custom display settings a possible.

Features

- 9 way d-type to accept power and serial data (leads available for AX22, DL1, DL2, SPEEDBOX)
- Simple video in and video out connections (BNC connector)
- Configurable from a PC
- Up to 5 user configurable screens with values, bar graphs, or both.
- Screens cycled through using push button on front panel
- Data and power LEDs to show operation
- Can be configured to accept data formats from other manufacturers products by using Race Technologies Serial converter units. (Must be configured using DL1 or DL2)

The actual information that can be displayed depends on the hardware that the display is connected to.

	DL2	DL1	AX22	SPEEDBOX
GPS based Lap and sector times	Yes	Yes	Yes	-
Accelerations	Yes	Yes	Yes	Yes
RPM	Yes	Yes	Yes	-

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Analogue channels (temperatures, pressures, etc)	16	8	-	-
Frequency channels	4	4	-	-
Speed	Yes	Yes	Yes	Yes
Position/Altitude	Yes	Yes	Yes	Yes

Configuration

The data that is displayed can be controlled using the PC software provided, meaning that only the relevant data is visible and presented in the most helpful format. Using the software you can control:

- Which channels are displayed
- The name of the channels
- The units displayed
- The scaling of the channels
- The number of decimal places displayed
- Number of channels are displayed on the screen
- Whether the channel is displayed as a value or bar graph
- The lower and upper warning levels for the channels

Frequently asked questions

How does the lap and sector timing work without a beacon?
Because the system knows it's position on the track from the GPS data, to mark the point as a lap or sector you simply press a button on the DL2/DL1. The DL2/DL1 then calculates the lap and sector times every time you subsequently pass that point on the track and transmits them to the dashboard for display.

If the GPS data is 5Hz, does this mean the times have a resolution of 0.2 seconds?
No, the system calculates the position very accurately and the lap times have a resolution of 0.01 seconds. Sector times are generally far more accurate than a traditional lap beacon system.

Can I directly compare the lap sector times from the display and the analysis software?
Yes, the track markers can be imported and exported from the analysis software.

Does the VOB work with the DL90 or AP22?
No, there is no serial output from the DL90 or AP22 for the VOB to use

Can the VOB be used on it's own?
No, it's designed to read a serial data stream and doesn't have any other inputs or sensors.

Can the VOB be used without a camera?

Yes, if there is no video signal present the data will be displayed on a blue background

Do I have to be monitoring a channel for the alarms to work?

No, all incoming data is monitored continuously to check against the upper and lower warning limits, so even if a variable is not being displayed, the warning will still be shown.

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How do I get the setup data from the DL2/DL1/AX22 onto the dashboard?

The setup file is put onto the compact flash card, it is then sent automatically from the logger to the VOB when the logger is powered up.

Specification

Controls	1, 10mm button for selecting display screen
Power Supply Requirements	12v nominal input, minimum of 10v, maximum of 15v. Current consumption of approximately 50mA.
Case Construction	Extruded aluminium with machined fibreglass front and back panels.
Connector Type	Serial port 9 way d-type, Video in/out BNC
Main Processor	40MHz RISC with embedded flash program memory
Serial Port	RS-232 serial port with automatic baud rate detection for receiving information via the standardised serial stream from our data logging products. Also used for re-flashing, diagnostics and configuration.
Dimensions	100mm x 30mm x 65mm (W x D x H)
Temperature	Factory tested from 0^{o}C to 70^{o}C
Video Level	0.7v pk-pk composite video. NTSC or PAL (specify at time of ordering)

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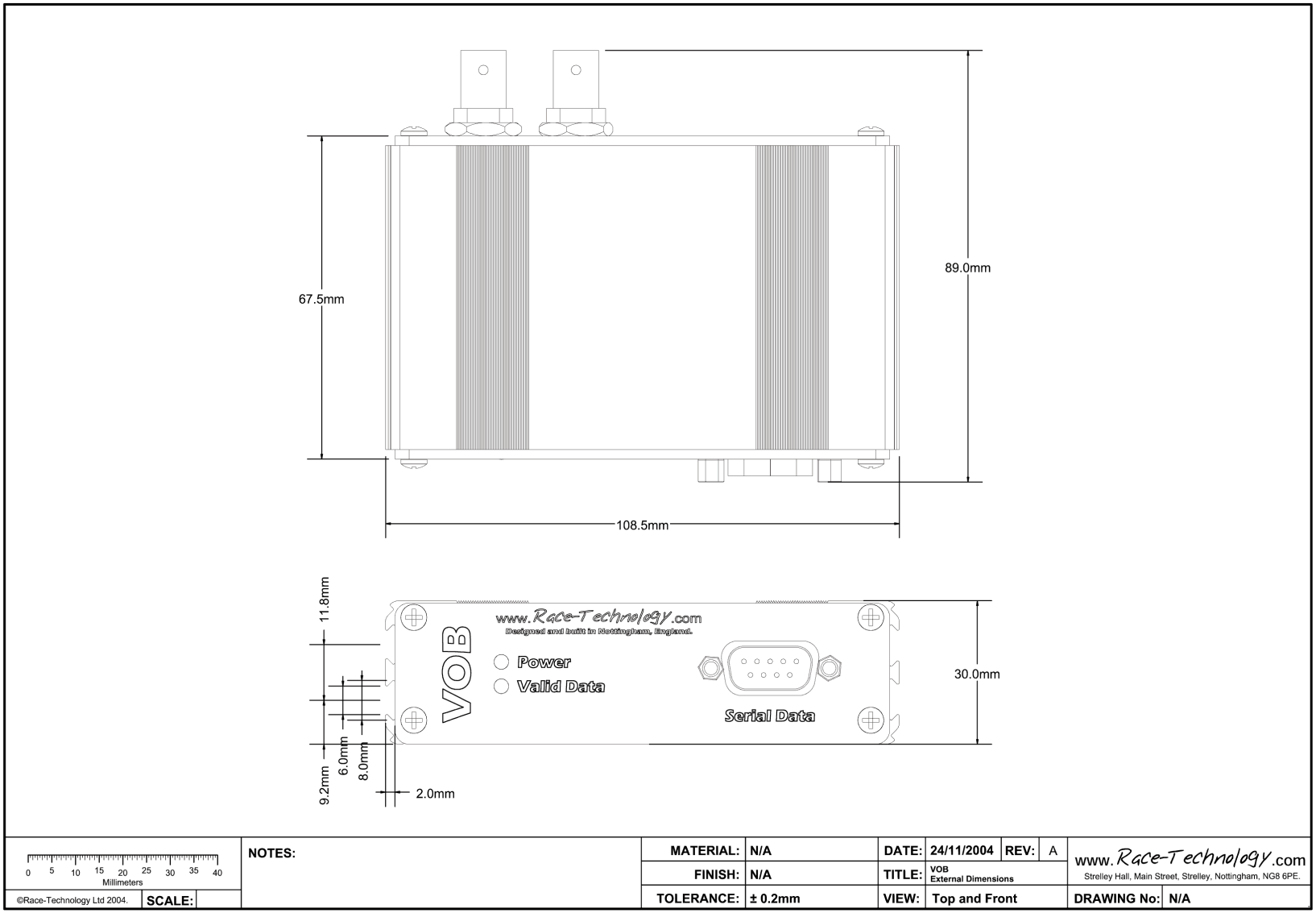

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		FINISH:	N/A	TITLE:	VOB External Dimensions		
©Race-Technology Ltd 2004. SCALE:		TOLERANCE:	± 0.2mm	VIEW:	Top and Front	DRAWING No:	N/A

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