STACK STACK STACK®

Motorsport DVLs

Stack's new range of Digital Video-Loggers (DVLs) can be used as a conventional DVR to record video and audio. Now they can also record data as well as video, in one compact unit, for the ultimate in Synchronized Video-Logging!

Stack DVLs can be connected directly to any Stack Dash Display or Data logging system by CAN Bus. Up to 128 channels of data, including GPS and the internal 3-axis G-sensor channels, can be recorded with the video and audio. The recorded MPEG2 file can be played back directly on a DVD player or any PC media player. Additionally the video and data can be viewed and analysed in the supplied Stack DataPro Analysis software. Side-by-side playback of two videos enables you to immediately "see" WHERE and WHY time is being gained or lost between different drivers or different runs.

Stack's PRO-4 and CLUBMAN-3 multi-camera DVLs are the most robust available. The slim, lightweight, waterproof design makes them the perfect solution for all motorsport and trackday applications.

Fully configurable, they capture TV broadcast standard video and audio up to 20Mbps, directly onto a Compact Flash (CF) card. The image can be recorded in either 4:3 or 16:9 (widescreen) aspect ratio. The DVLs have an A/V output for connection to an external monitor. Recording can be triggered automatically using the built-in 3 axis G-sensor; alternatively use the included remote control record trigger switch with status LED.

Key features:

- NEW! Video-Logging with synchronized recording of vehicle data channels.
- NEW! CAN bus interface for direct connection to Dash Displays and Logging Systems or ECUs.
- Solid-state, no moving parts, ensuring reliable operation year after year.
- Fully waterproof unit (PRO-4 model).
- Records MPEG2 video to removable CF card, playable on PC or burn directly to DVD.
- Multiple (3 or 4) fully configurable camera inputs.
- 720x576 resolution @ 25 fps (PAL) or 720x480 @ 30 fps (NTSC).
- Widescreen 16:9 and standard 4:3 aspect ratios.
- GPS, G-sensor and vehicle data overlays.
- User configurable bit-rate up to 20 Mbps (up to 50Mbps Broadcast quality option available).
- Best video image quality in the business.
- Over 9 hours of high quality, full resolution recording (subject to CF card size).
- 2 channel audio recording.
- Automatic record start/stop using built-in 3-axis G-sensor.
- 9-20V DC powered, 5 Watts, suitable for all motorsport applications.

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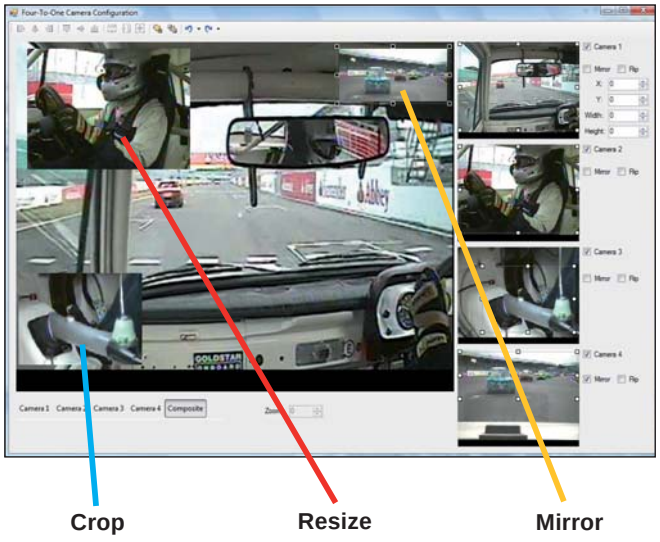
Multiple camera inputs

Stack's CLUBMAN-3 and PRO-4 DVLs incorporate an on-board multi-camera processor, enabling any combination of 2, 3 or 4 camera images. Simple to use PC software enables you to create your own multi-camera screen layout, positioning, cutting, cropping and scaling individual camera images as required.

Unlike with other systems, you can maintain each picture-in-picture at full resolution if desired, while cropping it to record only the area of interest.

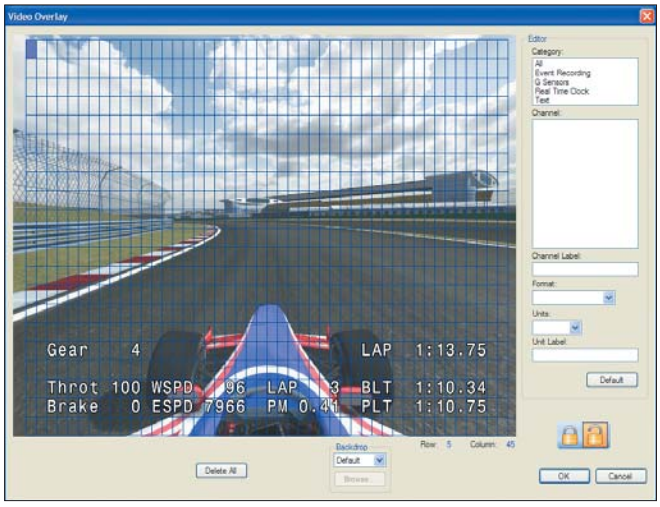


External Interface

The Stack DVLs support a number of external interfaces. NEW FOR 2011, a CAN interface allows the DVL to be directly connected to an existing Stack Dash Display or Data Logging system. A GPS receiver can also be connected to the DVL to provide speed, position, altitude, time and date information.

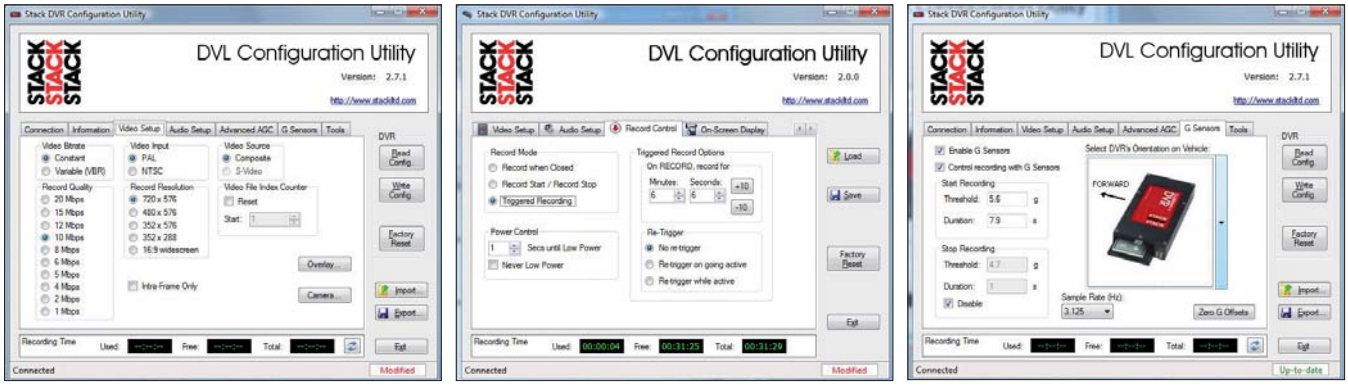
Data Overlay

Data Overlay enables data from these CAN and/or GPS sources, together with the internal 3-axis G-sensor, to be overlaid on the recorded video image. Positioning the data on the image is simple, using the drag-and-drop PC configuration software.

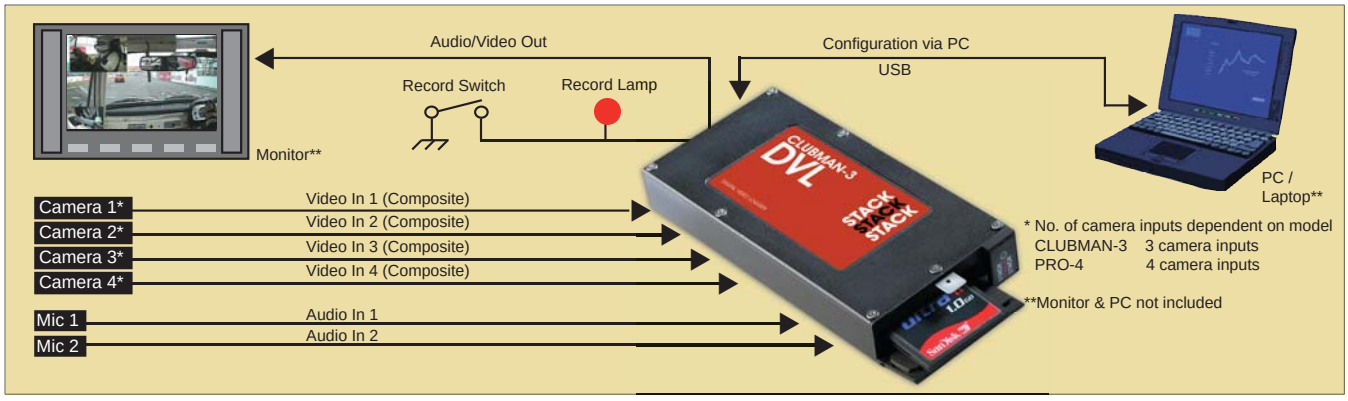


Simple yet powerful configuration

All DVL's are supplied with our easy-to-use PC Configuration Utility, which makes set-up and configuration of the DVL quick and easy. It offers comprehensive flexibility and control over the DVL's operation including video and audio recording quality selection. The functionality of the external record switch can be configured, and the DVL can be function based on the internal 3 axis G-sensor.



System Schematic



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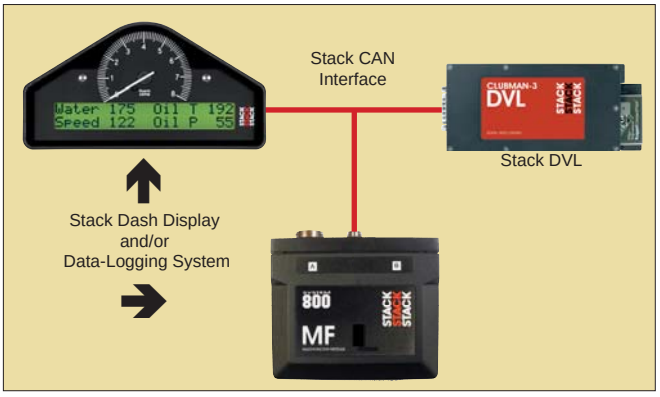
Synchronized Video-logging

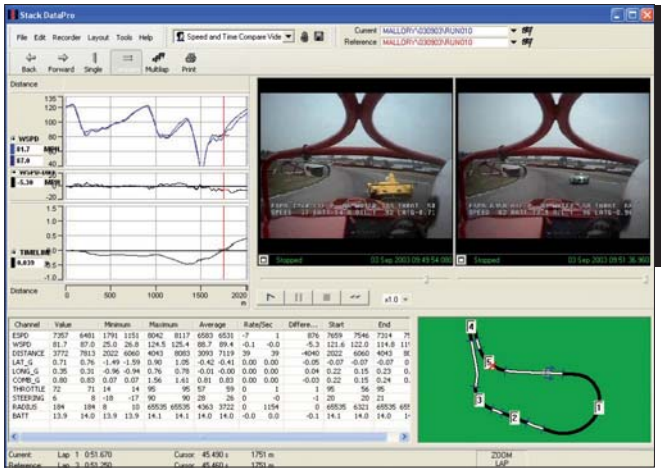
NEW FOR 2011, Stack DVLs have a built-in CAN interface, enabling connection to any Stack Display or Logging System, or third party ECU, to provide synchronous data and video recording and/or overlay of data channels on the video.

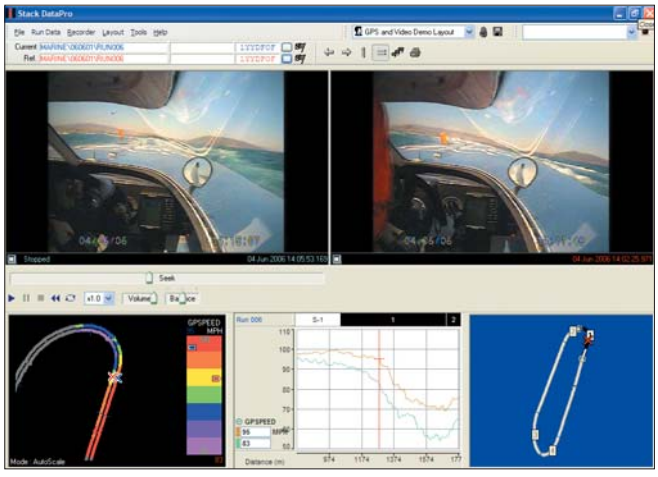
Data from the Stack system plus the internal 3-axis G-sensor and optional GPS receiver, are recorded with the video onto the CF card for subsequent replay and analysis using the Stack DataPro software supplied.

The track-map can be calculated from the GPS data, or from inertial data (speed, lateral-g force). Any point on the trackmap can be selected with one mouse-click, allowing the user to navigate through the video and data with pinpoint precision.

The user can compare two laps of data from different drivers, runs, cars, etc. With the addition of side-by-side video recordings, and single frame-stepping through the data, now you can literally 'see' WHERE and WHY time between 2 driver/runs is gained or lost!







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PRO-4 DVL

4 camera inputs

10 Fixed Bit-rates (1 Mbps Min. 20 Mbps Max.)

CAN Bus & GPS Receiver inputs

0 to 70ºC (32 to 160ºF) operating temperature range

Fully waterproof

3 x 9W DDAS

Intended for the most demanding motorsport applications, especially in wet and/or high vibration environments, the PRO-4 DVL is a fully waterproof unit, utilising Motorsport 'AS' connectors. Being a fully waterproof unit, and operating from 0-70°C, the PRO-4 DVL is ideally suited for all types of motorsport, from Formula 1 to karts, bikes to boats, and many more applications. The PRO-4 DVL supports recording bit rates up to 20 Mbps - significantly higher quality than commercial DVD's. (A version recording at 50Mbps is available for broadcast applications).

CLUBMAN-3 DVL

3 camera inputs

10 Fixed Bit-rates (1 Mbps Min. 20 Mbps Max.)

CAN Bus & GPS Receiver inputs

0 to 50ºC (32 to 122ºF) operating temperature range

15W "D" connector, 3.5mm AV jack, Micro-USB

The CLUBMAN-3 DVL is perfect for all forms of club and semi-professional motorsport that do not require a fully waterproof unit. The CLUBMAN-3 DVL offers high-performance coupled with outstanding reliability yet is exceptional value for money. The CLUBMAN-3 DVL has three camera inputs and supports bit rates up to 20 Mbps.

DVL Camera Packages

At Goldstar we are delighted to recommend and use both the Stack Clubman 3 and Pro4 DVLs. Now you too can purchase a complete system which is specifically tailored to your motorsport discipline. All Goldstar-Stack camera packages include:

- Your chosen DVL (Clubman-3 or Pro-4) with built in multi-camera processor.
- Sony HQ1 580tvl cameras with a choice of lens specific to your requirements.
- Small sensitive microphone.
- Choice of anti vibration, multi-directional, CNC machined Goldstar mounts and camera holder.
- Multi-camera wiring harness.
- Applicable set up software and instruction manual.

The end result is you end up with a perfect solid state video recording package aimed specifically at your requirements and budget.

Clubman-3 from £799

Pro-4 from £1299

It is worth noting that if you chose a multi-camera package then we include the same high quality 580tvl Sony cameras throughout, there is no lower specification camera trade off on packages with 2/3/4 cameras.

Goldstar Package	DVL only	Single Camera Kit	2 Camera Kit	3 Camera Kit	4 Camera Kit
Stack Clubman-3	£799	£924	£1049	£1174	N/A
Stack Pro-4	£1299	£1424	£1549	£1674	£1799

Multi-Camera Upgrades

Plus, with Stack's unique multi-camera wiring harness any single, 2 or 3 camera systems (not Clubman-3) can easily be upgraded at a later date simply by purchasing the required number of extra cameras and mounts, these are offered at a special upgrade package price of £150.

N/A = Not available
Please advise the diameter of your roll bar in mm at time of order
All prices are exclusive of UK VAT.

Specifications

	PRO-4 DVL	CLUBMAN-3 DVL
GENERAL		
Mechanical Size	151 x 76 x 21mm	151 x 76 x 21mm
Finish	Hard Anodised Al	Hard Anodised Al
Weight	380g without card	380g without card
Operating Voltage Range	9V to 20V DC	9V to 20V DC
Power Consumption:	~5W	~5W
Connectors	3 x 9W DDAS	15 W "D", 3.5mm AV Jack, Micro-USB
ENVIRONMENTAL*		
Operating Temp. Range	0 to 70ºC (32 to 146ºF)	0 to 50ºC (32 to 122ºF)
Sealing	Waterproof	Not sealed
STORAGE MEDIUM		
Storage Medium	Compact Flash	Compact Flash
Maximum Card Size	32GB	32GB
File Format	MPEG-2; Windows Media Player & DVD compatible	MPEG-2; Windows Media Player & DVD compatible
RECORDING - VIDEO		
Number of video inputs	4	3
Video Standards Supported	PAL/NTSC	PAL/NTSC
Video input multiplexing options	Any format of 1 to 4 cameras on one screen (with programmable scale, mirror, crop and position)	Any format of 1 to 3 cameras on one screen (with programmable scale, mirror, crop and position)
Composite Video Input	Composite 1V pk-pk	Composite 1V pk-pk
Video Frame Rate	PAL 25fps; NTSC 30 fps	PAL 25fps; NTSC 30 fps
Video Monitor Output	1 V pk-pk Composite	1 V pk-pk Composite
Compression Format	MPEG-2	MPEG-2
Resolutions Supported	16:9 Widescreen, D1; 2/3D1; 1/2D1, SIF	16:9 Widescreen, D1; 2/3D1; 1/2D1, SIF
Quality - bitrate (at D1 resolution)	8 Fixed Bit-rates (1 Mbps Min. 20 Mbps Max.)	7 Fixed Bit-rates (1 Mbps Min. 20 Mbps Max.)
CF Record Time (at D1 Resolution)	11 to 136 Mins/Gbyte	14 to 136 Mins/Gbyte
RECORDING - AUDIO		
Number of channels	2	2
Input Level	Line Level +3 to -30dB	Line Level +3 to -30dB
Input Impedance	> 10k Ohms	> 10k Ohms
Audio Monitor Output	0dB (nominal)	0dB (nominal)
Audio Monitor Output Impedance	<100 Ohms	<100 Ohms
MISCELLANEOUS		
G-sensor auto stop/start recording	Yes	Yes
Power up to Record start time	<20 Sec	<20 Sec
Record Switch to Record start/stop time (in powered up state)	<0.1 Sec	<0.1 Sec
Lost recording time between 2GB files	None	None
Max video loss if power lost while recording	<last 1 Sec	<last 1 Sec
Configuration	Via USB	Via USB
INTERFACE		
CAN Bus Interface	Configurable for Stack Dash Display and Data Logging Systems	
GPS Interface	1-20Hz (NMEA 0183 Interface)	
DATA OVERLAY		
GPS/G-force Data Overlay	Option	Option
Real-time Performance Data Overlay	Expansion System Option (requires Stack Display/ Steering wheel System)	Expansion System Option (requires Stack Display/ Steering wheel System)

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