**Digital Video Recorders**

Stack’s second generation video recorders have the same quality, reliability and compact design of the original Stack DVR, but now come in an expanded range with added functionality and improved specifications.

NEW! Continuous Loop Recording modes.
NEW! Event Recorder mode, with pre- and post-trigger record periods.
NEW! Synchronised recording with Stack’s data recorders.
NEW! Automatic motion controlled recording with in-built 3-axis g sensor.
NEW! G-force and GPS data overlay option.
NEW! Brownout protection option records up to 1 second of video after power loss.
NEW! Multiple camera options across entire range.
NEW! Improved, easy to use picture-in-picture screen configuration software.
NEW! Widescreen 16:9 or 4:3 screen ratio supported.

For high quality video recordings on the move, Stack’s miniature Solid-State Digital Video Recorders (DVRs) provide the optimum solution and are specifically designed for use in harsh environments. The rugged machined aluminium housing means Stack DVRs are capable of operating where normal VCRs or DV recorders are not.

All models in the Stack DVR range use MPEG-2, ideal for distribution or archiving on DVD discs and the format of choice for professional broadcasters. Up to 18 hours of DVD-quality video can be recorded on a single CF (Compact Flash) memory card.

Stack DVRs provide superior high-quality video recording in real time over a wide range of bit rates suitable for different applications - a fixed rate of up to 20 Mbps is available, quality equivalent or better than DV tape. The DVR2-500 and DVR2-540, designed for video professionals, boast up to 50 Mbps (Variable Bit Rate) for broadcast production use.

Stack’s multiple camera DVRs incorporate an integrated video mixer to allow any format of up to 3 or 4 composite PAL/NTSC cameras (depending on model) to be recorded simultaneously on one screen with fully programmable scaling, crop and positioning.

As well as the conventional record mode, the DVR2 range also provides a “continuous loop” record mode, whereby once the CF card becomes full, the DVR continues recording, overwriting the oldest recordings.

The DVR2 range also include an “Event Recording” mode, to enable specific externally triggered events to be recorded, with user selectable pre-trigger and post-trigger periods.

**Key Features**

- Rugged, small and lightweight with no moving parts.
- Fully sealed to IP67 units available.
- Real time MPEG-2 compression of video and stereo audio.
- Up to 50 MBits/Sec for broadcast production use, with POV cameras.
- Record to removable Compact Flash (CF) Card, playable on a PC/laptop. Files can be burnt directly to DVD.
- Up to 32GB of memory, providing more than 18 hours of high quality, full resolution recording.
- Video recordings can be transferred to a PC over the USB link.
- Recordings can be viewed on external MPEG2 media player via USB.
- 3 or 4 camera inputs with integrated configurable mixer available.
- 16:9 or 4:3 screen ratios supported.
- Extended operating temperature range: -20 to +80°C (-4 to 176°F) available.
- Continuous Loop Recording modes.
- Event Recorder mode, with pre- and post-trigger record periods.
- Synchronised recording with Stack’s data recorder.
- Quick release sealed CF card door.
- External DVR status LED.
- Automatic record start/stop using built-in 3-axis g-sensor.
- Optional GPS and vehicle data overlays.
- 9 to 20V DC powered (20 to 50V DC option).
- Brownout protection option records up to 1 second of video after power loss.
- No video loss on power supply failure option.
- Firmware upgrades via internet.
**IN-BUILT VIDEO MIXER**

Stack’s range of multiple camera DVRs incorporate an in-built multiple camera input (composite PAL or NTSC) video mixer. This allows any format of 1 to 3 or 4 cameras (depending on model) to be recorded simultaneously with programmable scale, crop, position, flip, mirror and position of each picture.

Stack’s multiple camera input DVRs give the user full control over all screen elements with fully flexible picture-in-picture configuration.

The easy-to-use software utilises a simple click and drag interface to set up how each input channel is displayed. A live view of the arranged screen is available via the DVR’s monitor output.

**DVR CONFIGURATION SOFTWARE**

Standard across all models in the Stack DVR range is a PC-based Configuration Utility which offers comprehensive flexibility and control over the DVR’s operation including video and audio recording quality selection.

Also configurable is Record Control (how the DVR will respond to the Record Switch including setting up the 3-axis g sensor automatic stop/start recording function).

All configuration settings can be saved and transferred to other Stack DVRs.

**SYSTEM SCHEMATIC**

**GPS & G-FORCE DATA OVERLAY OPTION**

The GPS and G-force Data Overlay option can be added easily to your DVR. Simply plug in the optional (NMEA 0183 Interface) GPS receiver and speed, position, altitude, time and date information can be overlaid on the recorded video image, along with the lateral-, long- and vertical-g data from the internal 3-axis accelerometer.

Positioning the data on the image is simple using the drag-and-drop PC configuration software supplied (below). A screen-shot from one of the camera inputs can be used as a background to further aid overlay composition.

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* Number of camera inputs dependent on model
  - DVR-100 1 camera input
  - DVR-130 3 camera inputs
  - DVR-200 1 camera input
  - DVR-240 4 camera inputs
  - DVR-400 1 camera input
  - DVR-440 4 camera inputs
  - DVR-500 1 camera input
  - DVR-540 4 camera inputs

** Monitor & PC not included
DVR2-130

Stack’s DVR2-130 is the perfect solution for applications that require reliability and toughness but not a fully waterproof unit.

In common with all of the DVR2 range, the DVR2-130 offers high-performance coupled with outstanding reliability.

Each Stack DVR comes complete with harnesses, including camera and mic’ power outputs, record control switch and status lamp.

- 3 camera inputs
- 7 Fixed bit rates from 1 to 10 Mbps
- 16:9 Widescreen or 4:3 screen ratios
- 14-140 Mins/Gbyte @ full resolution recording time
- 32 GB maximum card size
- 9 to 20V DC powered (20-50V DC option)
- 0 to 50ºC operating temp. range
- External status LED
- Sealed CF card door (closed)
- Automatic stop/start recording with in-built 3-axis g sensor
- Continuous Loop Recording modes
- Event Recorder mode, with pre- and post-trigger record periods
- G-force or GPS data overlay option
- 1 sec. real-time date & time overlay

Also available with single camera input: DVR2-100

DVR2-240

Stack’s DVR2-240 offers “professional performance” even under the most difficult conditions including wet and/or high vibration environments.

The unit is fully waterproof and boasts an extended operating temperature range of 0 to 60ºC.

The 32GB maximum card size allows longer continuous recording runs.

- 4 camera inputs
- 8 Fixed bit rates from 1 to 12 Mbps
- 16:9 Widescreen or 4:3 screen ratios
- 11-140 Mins/Gbyte @ full resolution recording time
- 32 GB maximum card size
- 9 to 20V DC powered (20-50V DC option)
- 0 to 60ºC operating temp. range
- External status LED
- Sealed
- Automatic stop/start recording with in-built 3-axis g sensor
- Continuous Loop Recording modes
- Event Recorder mode, with pre- and post-trigger record periods
- G-force or GPS data overlay option
- 1 sec. real-time date & time overlay
- Mil-type “AS” connectors

Also available with single camera input: DVR2-200

DVR2-440

For the most demanding applications, the DVR2-440 can be used in harsh environments including high vibration and extreme temperatures.

The DVR2-440 has a IP67 standard waterproof rating and utilises Mil-type connectors.

The 15 Mbps maximum fixed bit rate produces unmatched video quality.

The Brownout protection option ensures recording continuous despite power loss of up to a second.

- 4 camera inputs
- 9 Fixed bit rates from 1 to 15 Mbps.
- 16:9 Widescreen or 4:3 screen ratios
- 9-140 Mins/Gbyte @ full resolution recording time
- 32 GB maximum card size
- 9 to 20V DC powered (20-50V DC option)
- -20 to 70ºC operating temp. range
- External status LED
- Fully sealed to IP67
- Automatic stop/start recording with in-built 3-axis g sensor
- Continuous Loop Recording modes
- Event Recorder mode, with pre- and post-trigger record periods
- G-force or GPS data overlay option
- 1 sec. real-time date & time overlay
- 1 sec. real-time date & time overlay (0.01 sec. real-time date & time overlay option)
- Mil-type “AS” connectors
- 20g continuous vibration rating
- 50g shock rating
- Brownout protection option records up to 1 second of video after power loss

Also available with single camera input: DVR2-400

DVR2-540

With stunning picture quality, the DVR2-540 captures video and audio that is equivalent or better than DV tape but is immune to the susceptibility of non solid-state devices to shock, vibration and temperature.

The DVR2-540 can achieve bit-rates in excess of 30Mbps, even up to 50Mbps VBR - dependant on content.

Another key feature is Intra-frame (I-frame) only record mode - a great benefit to video professionals using a non-linear editing system such as Avid or Final Cut Pro.

- 4 camera inputs
- 10 Fixed bit rates from 1 to 20 Mbps + Variable Bit Rate
- 16:9 Widescreen or 4:3 screen ratios
- 3-140 Mins/Gbyte @ full resolution recording time
- 32 GB maximum card size
- 9 to 20V DC powered (20-50V DC option)
- -20 to 70ºC operating temp. range
- External status LED
- Fully sealed to IP67
- Automatic stop/start recording with in-built 3-axis g sensor
- Continuous Loop Recording modes
- Event Recorder mode, with pre- and post-trigger record periods
- G-force or GPS data overlay option
- 1 sec. real-time date & time overlay (0.01 sec. real-time date & time overlay option)
- Mil-type “AS” connectors
- 20g continuous vibration rating
- 50g shock rating
- Brownout protection option records up to 1 second of video after power loss

Also available with single camera input: DVR2-500
### SPECIFICATIONS

#### RECORDING - VIDEO

<table>
<thead>
<tr>
<th>Model</th>
<th>DVR2-100: 1</th>
<th>DVR2-200: 1</th>
<th>DVR2-400: 1</th>
<th>DVR2-500: 1</th>
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</thead>
<tbody>
<tr>
<td>Number of camera inputs</td>
<td>DVR2-100: 1</td>
<td>DVR2-200: 1</td>
<td>DVR2-400: 1</td>
<td>DVR2-500: 1</td>
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<tr>
<td>Video Standards</td>
<td>PAL/NTSC</td>
<td>PAL/NTSC</td>
<td>PAL/NTSC</td>
<td>PAL/NTSC</td>
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<tr>
<td>Composite Video Input</td>
<td>Composite 1V pk-pk</td>
<td>Composite 1V pk-pk</td>
<td>Composite 1V pk-pk</td>
<td>Composite 1V pk-pk</td>
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<tr>
<td>Video Frame Rate</td>
<td>30 fps (NTSC) 25 fps (PAL)</td>
<td>30 fps (NTSC) 25 fps (PAL)</td>
<td>30 fps (NTSC) 25 fps (PAL)</td>
<td>30 fps (NTSC) 25 fps (PAL)</td>
</tr>
<tr>
<td>Video Monitor Output</td>
<td>Composite 1V pk-pk Composite</td>
<td>Composite 1V pk-pk Composite</td>
<td>Composite 1V pk-pk Composite</td>
<td>Composite 1V pk-pk Composite</td>
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<tr>
<td>Compression Format</td>
<td>MPEG-2 MP@ML compression Program Stream</td>
<td>MPEG-2 MP@ML compression Program Stream</td>
<td>MPEG-2 MP@ML compression Program Stream</td>
<td>MPEG-2 MP@ML compression Program Stream</td>
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#### RECORDING - AUDIO

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of audio channels</td>
<td>2</td>
</tr>
<tr>
<td>Active Gain Control (AGC)</td>
<td>Yes</td>
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#### DISK INTERFACE

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Card Size</td>
<td>32GB</td>
</tr>
<tr>
<td>Maximum File Size</td>
<td>2GB</td>
</tr>
<tr>
<td>File to file transition data loss</td>
<td>None</td>
</tr>
<tr>
<td>File Format</td>
<td>MPEG-2 MP@ML compression Program Stream; Windows Media Player &amp; DVD compatible</td>
</tr>
</tbody>
</table>

#### MISCELLANEOUS

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power up to recording start time</td>
<td>&lt;20 Sec</td>
</tr>
<tr>
<td>Switch to recording start/stop time (in ready to record state)</td>
<td>Start: &lt;0.5 Sec Stop: &lt; 1 Sec</td>
</tr>
<tr>
<td>G-Sensor auto-start recording</td>
<td>Yes</td>
</tr>
<tr>
<td>Max video loss if power lost while recording</td>
<td>&lt;last 1 Sec</td>
</tr>
<tr>
<td>Configuration</td>
<td>Via USB</td>
</tr>
<tr>
<td>Continuous Loop Recording</td>
<td>Yes (multiple camera models only)</td>
</tr>
<tr>
<td>Event Recording Mode</td>
<td>Yes (multiple camera models only)</td>
</tr>
<tr>
<td>Pre-trigger Period</td>
<td>0 - 60 Mins (multiple camera models only)</td>
</tr>
<tr>
<td>Post-trigger Period</td>
<td>0 - 24 Hours (multiple camera models only)</td>
</tr>
<tr>
<td>Real-Time Date &amp; Time Overlay</td>
<td>1 Sec resolution 1 Sec resolution 1 Sec resolution 1 Sec resolution (0.01 Sec option) (0.01 Sec option)</td>
</tr>
<tr>
<td>GPS Data Overlay (option)</td>
<td>1-20 Hz</td>
</tr>
<tr>
<td>3 axis G-sensor Data Overlay</td>
<td>12.5 Hz</td>
</tr>
<tr>
<td>GPS Receiver Interface (option)</td>
<td>1-20 Hz (NMEA 0183 interface)</td>
</tr>
<tr>
<td>File Download</td>
<td>Via USB / remove card</td>
</tr>
<tr>
<td>Playback</td>
<td>Any MPEG2 media player or DVD player</td>
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</tbody>
</table>

#### ENVIRONMENTAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temp. Range</td>
<td>DVR2-100: 0 to 50°C (32 to 122°F) DVR2-200: 0 to +70°C (32 to 158°F) DVR2-400: -20 to +80°C (-4 to 176°F) DVR2-500: -20 to +80°C (-4 to 176°F)</td>
</tr>
<tr>
<td>Storage Temp. Range</td>
<td>-40 to +80°C (-40 to 176°F) -40 to +80°C (-40 to 176°F) -40 to +80°C (-40 to 176°F) -40 to +80°C (-40 to 176°F)</td>
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<tr>
<td>Sealing</td>
<td>Sealed</td>
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<tr>
<td>Humidity</td>
<td>0-100% RH Condensing</td>
</tr>
<tr>
<td>Vibration</td>
<td>20g 50-2000Hz swept Sin. 12hr x 3 axis</td>
</tr>
<tr>
<td>Radiated Emissions</td>
<td>EN55022 EN55024C</td>
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<tr>
<td>Shock</td>
<td>50g, 15ms</td>
</tr>
<tr>
<td>Radiated Immunity</td>
<td>50V/m</td>
</tr>
<tr>
<td>Conducted Immunity</td>
<td>DIN40839 Cat IV</td>
</tr>
</tbody>
</table>

#### GENERAL

<table>
<thead>
<tr>
<th>Feature</th>
<th>Specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mechanical Size</td>
<td>151 x 76 x 21mm</td>
</tr>
<tr>
<td>Finish</td>
<td>Hard Anodised Aluminium</td>
</tr>
<tr>
<td>Weight (without CF card)</td>
<td>300g</td>
</tr>
<tr>
<td>Operating Voltage Range</td>
<td>9 to 20V DC (option for 20V to 50V DC)</td>
</tr>
<tr>
<td>Reverse/Over-voltage Protection</td>
<td>50V/m, 15ms, 50V/m, 15ms</td>
</tr>
<tr>
<td>Power Consumption @ 12VDC</td>
<td>-5W</td>
</tr>
<tr>
<td>Standby Battery</td>
<td>Life &gt; 5 Years</td>
</tr>
<tr>
<td>Connectors</td>
<td>15 way &quot;D&quot; connector: 3.5mm AV Jack, Micro-USB 2 x 9W DDAS plus 1 x 5W AS 2 x 9W DDAS plus 1 x 5W AS 2 x 9W DDAS plus 1 x 5W AS</td>
</tr>
</tbody>
</table>

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In the interests of continuous product improvement, we reserve the right to alter without notice the specifications and features described in this leaflet. This leaflet shall not form part of a contract involving Stack unless stated in writing.

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