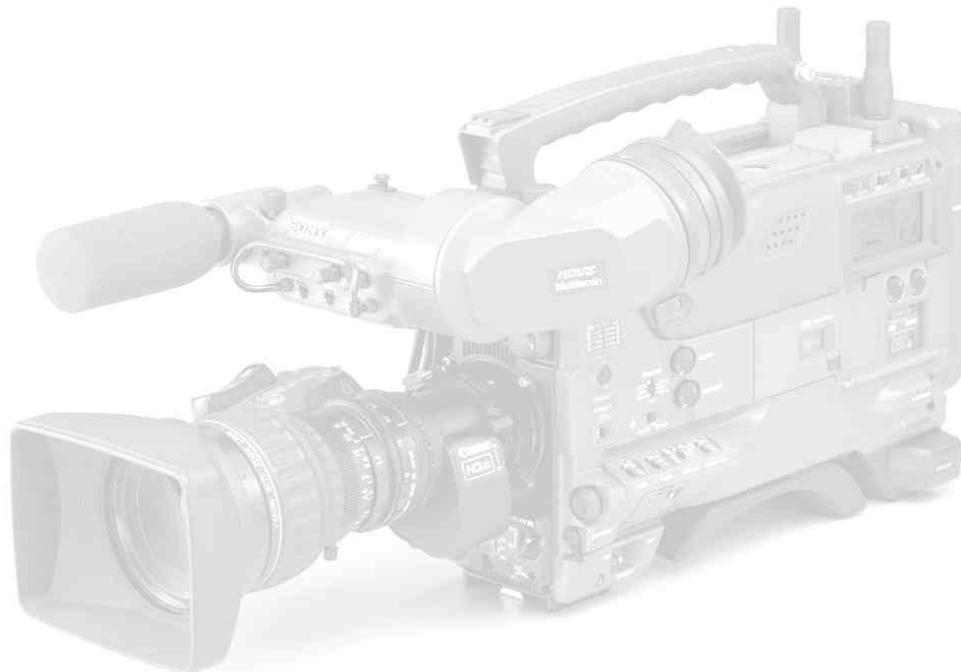


# HDW-750P / 730S

## User Guide

V1.3



The HDW-750P is a high definition camcorder recording to the HDCAM format. It can operate in either 25P progressive scan mode, or 50i interlaced. It's designed for the European HD for TV market, but has found many other applications, from corporate to commercials and movies. The HDW-730S can operate at either 50i or 59.94i and is designed mainly for TV applications for the European or American / Japanese / 60Hz market.

*This guide is designed for people using the Sony HDW-750P or HDW-730S camcorder who need some practical advice when preparing for a shoot. It's pitched at a level that will make most sense to people coming from a Digital Betacam™ background, but will hopefully still be of use to those coming from film or other formats.*

*As usual with these guides, the general philosophy is to record as much information as cleanly as possible to the tape. There are many ways you can change the look of your pictures in camera, but unless you're sure you're going to get exactly the final effect you want, then you're probably better spending time on lighting and composition. There are some important settings you need to get right, but after that, the '750 probably needs less 'fine tuning' than equivalent standard def. cameras.*

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## 1.0 Quick Start

If you're asked to use the '750 or '730S at short notice, and don't have the luxury of preparation time, here's a very short list of things to check to get you in the right ball park for getting sensible pictures:

- If you have a memory stick you wish to use: load an all file.  
*The all file overwrites all previous settings in the camera with your preferred settings.*
- If you don't have a memory stick, go to the file menus and set **user file**, **reference file** and **all file** to 'ALL PRESET'  
*This is effectively a factory reset.*
- If you're putting everything to all preset, after doing so, you may wish to turn on the preset matrix and set it to matrix 2 (ITU-709). You should turn the detail level down to about -30.  
*These two adjustments will get you from the factory preset condition which is a little de-saturated and over detail corrected, to a useful general purpose shooting condition.*
- Choose a frame rate.
- Set the shutter to 50Hz if shooting at 25P.

All these operations are covered in more detail in the following sections.

## 2.0 Differences between 750P and 730S

In most respects the two camcorders are identical. The following are the important differences:

| HDW-750P                              | HDW-730S                 |
|---------------------------------------|--------------------------|
| 25P or 50i                            | 50i or 59.94i            |
| 2x optical filter wheels              | 1 x optical filter wheel |
| FIT CCDs                              | IT CCDs                  |
| Concealed accessory connector at rear | No connector             |

## 3.0 Files and Menus

The explanation in the manuals of how the files and menus work is a little confusing to say the least. This is an attempt to clarify what happens and when.

- There are **menus**, which allow you to access and adjust a parameter.
- The values for each parameter are stored in **files**.
- There can be a value stored for a parameter in each of several **layers** of information.
- The end result can be the sum of the data values in several layers (Relative Data)
- The end result can be the value of just the top layer of data. (Absolute data)

The terminology used in the manuals is possibly the most confusing aspect. For instance the word 'USER' is applied to menus, layers and files...user menu; user file; user layer. The difference between these three terms is important.

### 3.1 Menus

The access point to groups of adjustable items.

- **User Menu**  
Normally accessible whenever the camera is switched on. Stuff from any of the menus below can be added to this menu, so that it could become the only menu you need. You can't really say what the user menu does, as it depends how many items and pages from the rest of the menu are allocated to it.
- **Top menu**  
This is the menu of menus...Normally when you turn the menu on, you get the user menu as described above. If you turn the menu on whilst holding the front scroll button pressed in, you get the following extra menus to pass the time with in airport departure lounges:
- **User Customize**  
This is where you go to customize the user menu described above. Here you can add and delete items to the user menu. You can create 5 pages of 10 items chosen from the menus below, plus any whole pages you like, to create your user menu.
- **All menu**  
72 pages of settings. As the name suggests it contains all the available pages. These 72 pages are then split into more manageable chunks, comprising the operation, paint, maintenance, file and diagnostic menus described below.
- **Operation Menu**  
Things that affect the way switches, outputs and displays are configured. Not items that directly affect pictures, but affect the way the controls work.

- **Paint Menu**  
Picture control. 'The look'. Detail, Gamma, Knee etc. are all adjusted in this menu. Also has access to scene files to store and recall different 'looks'.
- **Maintenance Menu**  
Format switching (25P/50i ) is here, plus more obscure technical stuff. Includes the things that used to be in the menu accessed via the button on the timecode panel on digital betacam camcorders.
- **File Menu**  
Save, load, store and recall all the different file types. (You can also access some files from within each individual menu. For instance you can load a lens file from within the operation menu, or from within the file menu...it's the same result.)
- **Diagnostics**  
In the unlikely event of a problem! This menu can help isolate a fault to a particular board. Also tells you software versions of the various boards in the camera, and drum running and operation hours.
- **(Service Menu)**  
Not normally accessible. You need to set internal switches to gain access to this menu.

### 3.2 Files:

Stored information about groups of adjustable items

- **User**  
Holds whatever values have been allocated to the user menu.
- **User Preset**  
The user file can be stored as a default setting, by moving it from the user layer to the preset layer. See layers below.
- **Scene**  
Mostly items from the paint menu. Use this as a sort of 'scratchpad' for holding picture set-ups.
- **Reference**  
Stored separately to the other files, this is only accessed during an 'auto level' operation. Auto level is a function normally associated with systems cameras, and is only accessible from RCPs designed for this kind of work, so is not really relevant to the '750. During auto level the camera reads the reference file, and copies the items held in it to the preset layer of the camera.
- **All**  
Overwrites all the user and preset layers, except for items held in the lens file. This is the one to use for matching cameras.
- **Lens**  
Shading, flare and colourimetry info specific to the lens or camera.

### 3.3 Layers:

Where the files are stored

- **User**  
This layer is added to the preset, service and factory layers to produce the final output of the camera. Any values you tweak via the menu are changed in this layer, and if you recall a file you will see the results here.

- Preset**  
 A default setting where you can decide what the default should be. When you hit the STD button on an RCP, or ALL PRESET in the menus, you are deleting various values held in the user layer, leaving the camera at its preset value. Use STORE USER PRESET or STORE ALL PRESET to change the default settings.
- Service**  
 Think of this as the factory reset level (though factory level is actually another layer down). If you clear the user and the preset layers, this is where you end up, as the camera came out of the box. (This is done using CLEAR ALL PRESET in the ALL FILE page of the file menu.)
- Factory**  
 What it says.
- Memory Stick**  
 You can store 100 user files, 100 scene files, 100 all files, 100 lens files and a reference file on a memory stick. That's probably enough.

### 3.4 File Structure

| MENUS<br>LAYERS | USER                | USER<br>CUSTOM | OPS      | PAINT               | MAINT | FILE   | SERVICE | DIAG. |
|-----------------|---------------------|----------------|----------|---------------------|-------|--|---------|-------|
| USER            | User File           |                |          | Scene File<br>x5    |       | Lens File<br>x5  |         |       |
|                 |                     |                | All File |                     |       |  |         |       |
| PRESET          | Preset<br>User File |                |          | Reference<br>File   |       |  |         |       |
| SERVICE         |                     |                |          |                     |       |  |         |       |
| FACTORY         |                     |                |          |                     |       |  |         |       |
| MEM.<br>STICK   | User files<br>x100  |                |          | Scene<br>files x100 |       | Lens files<br>x100<br>All files<br>x100<br>Ref file x1 |         |       |

Best not to use the reference file. You can delete it using REFERENCE CLEAR, though loading an ALL file will overwrite all the values created from it. (The reference file itself is not overwritten.)

### 3.5 Loading Files

*Load and save operations relate to file transfer to and from memory stick.*

*Store and recall relate to file transfer within the camera.*

#### **If you have a memory stick with setups already stored on it:**

Open the side panel and insert the memory stick. The red LED will light if the memory stick is recognised.

No files are loaded until you go to the menus and tell the camera to load a file.

Press the front rotary control in, and keep it pressed while you use the toggle switch on the side of the camera to turn the menu on.

You should now see the 'TOP MENU' displayed in the viewfinder.

Turn the rotary control, and select the 'FILE MENU'

Turn the rotary control and select the 'USER FILE' page.

If you have a 'USER' file stored on your memory stick, this is probably the best one to load first.

- If you've customized the user menu it will now contain the pages you need to use, so you don't need to find the 'TOP MENU' and navigate through to the page you need.
- It will set up the camera monitoring outputs the way you want and display the menus on the downconverted composite output if required.
- It will set up the viewfinder displays the way you like to see them.
- It will configure the buttons and switches the way you like to use them.

Select 'USER FILE LOAD' and choose the file you wish to use. If you don't have a file stored, select 'USER PRESET', which returns the user menu to the factory preset settings.

Turn the rotary control and select the 'ALL FILE' page.

Loading an 'ALL' file is like wiping the slate clean before using a camera. All settings that will affect the way your pictures look will be overwritten, and you can be sure of starting from a known point. If you haven't created an 'ALL' file, then you can select the factory preset file.

Select 'LOAD ALL FILE'

If you have a suitable file on the memory stick, select and load it.

**If you don't have a memory stick**, and you want to clear any existing set up from the camera:

From the 'ALL FILE' page, select 'ALL PRESET'

This is the equivalent of hitting the factory reset button.

Finally, go to the 'SCENE FILE' page, and confirm that none of the check boxes next to the scene files have been selected. (Click on the scene file to de-select.)

Think of the 'ALL' file as the base level for the camcorder that you wish to start from for a particular shoot.

If you have some scene files stored on your memory stick, load them as well, but it's not essential.

Use the scene files to store adjustments and tweaks to that initial setup.

If the camera already has some scene files left in it, labelled 'Oscar Winning Cinematographer V1.0' or similar, it's probably best to ignore or overwrite them. Even if they were your files originally, they could have been modified and re-saved.

Check the camcorder is set to the correct frame rate.

Frame rate cannot be selected by loading files, as changing frame rate requires power down and power up. You can however store the frame rate you wish to use in a file, and you will get a prompt to change the frame rate during the file load process if it's not set to the one associated with the file.

If you're shooting at 25P, set the shutter to 50Hz

## 4.0 Camera Matching

Use the same 'ALL' file for all cameras on a multi-camera shoot.

Easiest method of keeping things colour matched is to use preset white balance and the same filter on all cameras. (Unless of course colour temperature changes during the shoot, and you want the white balance to stay the same.)

Ideally, all cameras should be checked against a reference camera, on the bench before the shoot begins (yes, yes...I know). If there is any small difference in preset colour temperature, it can then be offset electronically or VA gains can be tweaked to match.

When genlocking cameras, the '750 and '730 will read SD sync pulses in order to lock to timecode. If doing a live HD mix, then tri-level sync must be used.

## 5.0 Frame Rate

The HDCAM format allows for many different frame rates. With the HDW-750P, things are a little simpler, as you can record at either 25P or 50i. Put very crudely, you've got film mode and video mode.

25P will give you similar motion artefacts (flicker and blur) to film acquisition (see also the next section on use of the shutter.)

In 50i mode you will have the same motion artefacts as with Digital Betacam, but at a much higher resolution of course.

Shooting at 25P doesn't mean you're excluded from the 24P world of theatre projection and international distribution. 25P originated material can be played back 4% slow at 24P, in a kind of inverse way to a 24fps movie going through a telecine at 25fps.

The '730S also offers two frame rates: 50i and 59.94i

There's no progressive scan mode, so if you're looking for a filmic look, ideally you'd use the 750P, or F900. That's not to say you couldn't use the film effect process on 50i pictures from the 730S, in a similar way to digi-beta....but with 1080 line source material you'll get a much better result than you would with digi-beta.

The 730s has a useful advantage if working for productions coming from the NTSC world, as it can work at 59.94i (people often think of NTSC as 60Hz, but it's actually 59.94Hz)

Most HD VTRs can be set to play back at a wide range of different speeds. If for instance you've shot at 25P and you're scanning back to 24fps film, your programme duration will be 4% longer, and audio will be pitch shifted half a semitone down (though it can be electronically shifted back again and re-layed if necessary).

## 6.0 Shutter

Use of shutter on an HD camcorder is a little different to Digi Beta. The progressive scan mode (25P) that is the most popular mode of operation on the HDW-750, really needs to be used with the electronic shutter switched on. (Unlike Digi Beta, where it is rarely used).

In 25P mode, the camera takes 25 pictures per second (similar to a film camera) each one exposed for  $1/25^{\text{th}}$  of a second. This is quite a long exposure, and results in a significant blurring of moving images. If you use the shutter to expose for only half this period (i.e.  $1/50^{\text{th}}$  of a second) you get a more acceptable compromise between blur (no shutter) and flicker (fast shutter). This isn't really very surprising, as you are acquiring images in the same way as a film camera normally would, with a 180 degree mechanical shutter.

As a general rule, a shutter speed twice that of the frame rate is equivalent to a 180 degree film camera shutter and gives good results. You can still tweak the 'angle' of your shutter if required, e.g. to eliminate flicker from 60Hz lighting, use a 60Hz shutter; or to eliminate flicker from a computer CRT monitor, use the clearscan facility.

| At a frame rate of: | A film shutter angle of: | Is equivalent to: |
|---------------------|--------------------------|-------------------|
| 24 fps              | 200 degrees              | 43.2 Hz           |
| 24                  | 180                      | 48                |
| 24                  | 172.8                    | 50                |
| 24                  | 144                      | 60                |
| 24                  | 120                      | 72                |
| 25                  | 200                      | 45                |
| 25                  | 180                      | 50                |
| 25                  | 150                      | 60                |
| 25                  | 120                      | 75                |

With software version 1.7 and above it is possible to change the display of shutter speed to angular notation.

This can be done from the service menu (see your dealer for to get this feature enabled for you.)

## 7.0 Gain

The gain selections available from the switch on the side of the camcorder can be programmed in the user menu just like other camcorders.

A further option, available via the service menu, is to have the gain level displayed as an ISO / ASA sensitivity rating. Useful if you're from a film background, but this feature should be used with care, as the displayed 'speed' of the camera does not take into account other factors affecting sensitivity:

- Shutter
- ND filters
- Range extender
- Transmission factor of the lens

These should all be added into the equation before attempting to expose pictures purely by using a light meter and the ASA rating of the camera.

| Gain / dB | ASA  |
|-----------|------|
| -3        | 440  |
| 0         | 630  |
| 3         | 880  |
| 6         | 1300 |
| 9         | 1800 |
| 12        | 2500 |
| 18        | 5000 |

Note that if you're shooting at 25P you will probably choose to use a 50Hz shutter, and should therefore rate the cameras speed at half the above figures,

## 8.0 Outputs and Monitoring

HD will not fit into a PAL monitor. Too many lines, too high line frequency. This can make things a little awkward for location monitoring and viewing.

The HDW-750P / 730S however, comes with a number of standard and optional output signals that should give you what you need.

Firstly there's an HDSDI output. HDSDI is a similar idea to the SDI signal that is the de-facto digital interchange for standard definition. It just sends a lot more bits per second. (1500 Mbps as opposed to 270Mbps for SDSDI.) Unfortunately we're going to have to get used to the fact that there are now two flavours of SDI, and they don't mix.

Use the HDSDI output to connect to an HD monitor with an HDSDI input card. This is the signal you should use for critical picture monitoring, or to send to a separate HD VTR or disk recorder for a parallel recording or copying.

*HDSDI is a very high frequency signal, so it doesn't go very far down an ordinary BNC cable...about 40m maximum.*

The test out BNC supplies an analog luminance (Y) HD signal that can be fed to an HD monitor with a component input. It will only show a monochrome picture, as it's only luminance, with no colour components, but you can use it to check framing or view menus.

However...most camcorders are fitted with a down-converter option, that gives you several SD monitoring options.

### **How do you tell if the down-converter option is fitted?**

- There will be an extra BNC connector fitted in a 'bulge' in the bottom right hand corner of the side of the camcorder, pointing out of the back next to the 12V DC XLR connector.

From this connector you will be able to get either of the following, as chosen from the user menu:

- Composite PAL signal, that can be fed to any SD monitor with a composite input,
- SD SDI signal for good quality SD monitoring, or perhaps a Digi Beta

At the same time the test output can also now supply a composite video signal, so you could have for example:

- Composite video from the test output feeding floor monitors.
- SDI from the down-converter output feeding a digi beta or DVCAM offline VTR
- HDSDI feeding an HD directors monitor.

## 9.0 Other Options

These are the optional boards that can be fitted internally to the HDW-750P or 730S:

- HKDW-702 Down-converter for SD SDI or VBS outputs.
- HKDW-703 Cache recording for time-lapse or loop recording.
- HKDW-704 GPS support (TBA)
- HKDW-705 Slow shutter option. Up to 64 frame exposure times.

You can check which options are installed on the final page of the diagnostic menu.

## 10.0 Audio

Similar to Digital Betacam, but here are some points to bear in mind:

- The supplied front mic. is stereo, and uses a 5 pin XLR connection to the camera body.
- The optional internal radio mic. option is the WRR-855 model, as used previously on SX and IMX camcorders. It's a single channel diversity unit.
- There's an extra 3.5mm monitoring jack connection at the front of the camcorder.
- All those difficult to access menu items that you used to have to get to via the timecode panel on Digi Beta are now in the main camera menus, in the maintenance section.
- If you are using the HDVF-C30W colour viewfinder, there is no attachment point for the front mic. (You can use mic. mounting bracket CAC-12 )

## 11.0 Filters

As this camera provides such a lot of natural resolution, and you've probably paid a lot of money for an HD lens, it seems kind of perverse to put softening filters in front of the lens unless there's a particular dramatic effect you're after. Otherwise internal filters are the same as Digital betacam. Alternative internal filters can be provided by Tiffen or Calmar. Contact your dealer to have them fitted.

The 750P has a dual filter wheel, the 730S having a single wheel with a mix of colour correction and ND filters.

## 12.0 Detail

As mentioned above, there's a lot of natural detail available, and even with the detail switched off entirely, you'll still get very good pictures. The camcorder is often used in this mode, particularly if there will be a final print to film. Leaving a small amount of detail correction in will not cause any visible ringing or overshoots on edges.

Some things to be aware of:

- The HDW-F900 and the 'HDW-750P / 730s are very different in the way the detail works. There's much less range available on the F900, and if you wind the detail up to the end stop, it still won't make the pictures very hard edged or unpleasant.
- The '750 / 730 is different. If you wind the detail right up you can get very hard edged pictures indeed.
- Beware of winding detail level down too far. Below about -50 it will start to apply negative detail, and artificially soften edges. (i.e. softer than just turning detail off.)

## 13.0 Matrix and gamma

- Key to the matrix and gamma curve numbers used in the paint menu:
  - EBU matrix is recommended, or ITU-709 preferred by BBC R&D.
  - Matrix off will give an acceptable but desaturated look.
  - Standard Gamma curve 4 has a high initial gain, and is useful if going through a grading process during post production.

|   | Matrix     | Std. Gamma     | Film Gamma |
|---|------------|----------------|------------|
| 1 | SMPTE-240M | Digi Beta (3x) | 5248       |
| 2 | ITU-709    | MPTE 240M (4x) | 5245       |
| 3 | SMPTE Wide | ITU 709 (4.5x) | 5293       |
| 4 | NTSC       | BBC (5x)       | 5296       |
| 5 | EBU        |                |            |
| 6 | ITU-609    |                |            |

## 14.0 Lenses

The lens mount is the standard 2/3" bayonet mount, and all the main manufacturers provide a range of HD lenses, in film style and EFP variants, plus several sets of primes. You can of course use SD lenses on HD cameras, and they'll function perfectly well. It does seem a bit like buying a very expensive hi-fi system and using some cheap speakers though.

### 15.1 Back focus

There is no particular problem with back focus on the '750 / 730, or the 'F900. It's a slightly more precise adjustment, because of the smaller circle of confusion of HD, but the principle is the same as SD.

## 16.0 Viewfinders

There are three options available:

- HDVF-20W Monochrome tube monocular. (Flicker / blur in progressive mode can be exaggerated in the viewfinder.)
- HDVF-C30W Colour LCD monocular (Needs version 1.70+ AT and SS software. No mounting point for front mic.)
- HDVF-C750 Colour LCD 6.5" (Useful sidemount bracket which attaches to VCT-14 tripod plate is available from Dowling Design: <http://ddesign.co.uk/>)

## 17.0 Menu List

A complete list of menu items is attached. The ops manual and volume 1 of the maintenance guide will tell you what each item does, but you may find the list useful to note down your preferred settings.

A suggestion is offered where something other than the factory preset will give good results. Values in square brackets [ ] are suggestions that will give a set up appropriate for film transfer when using the pre-knee 'fix' option in the DCC page of the maintenance menu, which is available with software V2.0 onwards

### Disclaimer

Whilst every effort has been made to ensure the accuracy of this document, no responsibility can be accepted for consequential loss resulting from any error contained in it. Software versions change regularly. Please check that your pictures look the way you want them to on a properly set up monitor when entering new settings.

| OPERATION MENU          |                               |            |  |
|-------------------------|-------------------------------|------------|--|
| <b>01 OUTPUT SELECT</b> |                               |            |  |
| HD SDI OUT              | on/off                        |            | Highest quality output for critical monitoring, or recording to external device. Max cable run approx 60m. Uses power, so turn off if you need to conserve batteries.  |
| REAR BNC OUT            | VBS/SDI/off                   |            | Composite video (VBS) or SDI selectable from this output, as long as the downconverter option is installed.  |
| TEST OUT SELECT         | HD/SD                         |            | Test output can deliver composite with menus superimposed, if downconverter installed, or one of the HD components if HD selected. (Y, R-Y or B-Y)   |
| DOWN CON MODE           | SQEZE /LETR/CROP              | SQEZE      | The downconverter will also do aspect ratio conversion, and crop or letterbox the SD signal for you. SQEZE is just standard 16:9.  |
| <b>02 FUNCTION 1</b>    |                               |            |  |
| ASSIGN SW 1             | EZ-FC                         | Lens Ret   | Various functions can be assigned to the button and switch on the side of the camera.<br>Front mic on/off: Loop record: test out chc: Vf markers: easy focus: Re-take: ATW: Return video: Lens RET: Record: Turbo gain: Telemark: Zebra. |
| ASSIGN SW 2             | F.Mic                         | Vf markers | Front mic on/off: Loop record: test out chc: Vf markers: Zebra   |
| FRONT MIC SEL           | Mono/stereo                   |            |  |
| DF/NDF                  | DF                            | NDF        | Drop frame mode for NTSC timecode sync.  |
| END SEARCH              | Off                           |            |  |
| LOOP/INTVL REC          | Off                           |            | The loop recording and interval recording (timelapse) features are only enabled if the memory cache option is installed.   |
| LOOP REC TIME           | 1 - 8 secs (0)                |            | You can choose to start recording what happened up to 8 seconds ago when you hit the REC button  |
| TAKE TOTAL TIME         | 5min                          |            | When using timelapse mode, set the total real time duration of the event to be captured here.  |
| REC TIME                | 5sec                          |            | Set the duration of the event once 'timelapsed' here.  |
| NUMBER OF FRAME         | 1                             |            | If in manual timelapse mode, you can set the number of frames to be recorded at each interval here.  |
| TRIGGER INTERVAL        | 5 MIN                         |            | If in manual timelapse mode, set the interval between frame captures here.   |
| PRE LIGHTING            | Off                           |            | In timelapse mode, the camera can turn on the power to the anton bauer light connector a set interval before the frame is grabbed.   |
| <b>03 FUNCTION 2</b>    |                               |            |  |
| WHITE SW B              | Mem/ATW                       |            | The memory B position of the white balance switch can be re-configured to be the auto tracing white balance switch. (or you could allocate ATW to an assignable button.)   |
| SHOCKLESS WHITE         | Off/1/2/3                     | 3          | You can set a 'soft' transition from white balance mem. A to mem. B  |
| ATW SPEED               | 4                             |            | The speed of the above transition is set here.   |
| LOW LIGHT               | Off/on                        |            | Turn off that annoying warning message...  |
| LOW LIGHT LEVEL         | -99 to 99 (0)                 |            | ....or set the level at which it appears.  |
| BATTERY WARNING         | 10% - 20%                     |            | Sets the amount of battery warning for Anton Bauer batteries.  |
| <b>04 VF DISPLAY 1</b>  |                               |            |  |
| VF DISPLAY              | On/off                        |            |  |
| DISPLAY MODE            | 1/2/3                         |            | Mode 3 shows all warnings, and switch changes in VF, mode 2 shows some, mode 1 shows none.   |
| EXTENDER                | On/off                        |            | Following items determine how much information is displayed in your viewfinder:  |
| FILTER                  | On/off                        |            | Displays which optical filters selected.   |
| WHITE                   | On/off                        | Off        | Displays white bal. A/B/Preset   |
| GAIN                    | On/off                        | Off        | Displays gain selected   |
| SHUTTER                 | On/off                        |            | Useful to turn this one 'on' if in progressive scan, to remind you to use shutter.   |
| AUDIO                   | On/off                        | Off        | Displays audio level meters  |
| TAPE                    | On/off                        | Off        | Tape remaining time  |
| IRIS                    | On/off                        |            | Displays F stop  |
| <b>05 VF DISPLAY 2</b>  |                               |            |  |
| ZOOM                    | On/off                        | Off        | Numerical display of zoom position. Useful for reframing shots   |
| COLOUR TEMP             | On/off                        |            | White balance info.  |
| VOLT                    | On/off                        |            | Battery voltage  |
| DC IN                   | On/off                        |            | DC power input   |
| WRR RF LEVEL            | On/off                        |            | If you have the internal radio mic fitted, this will give you a signal strength reading in the viewfinder.   |
| TIMECODE                | On/off                        |            | TC in viewfinder, and on test out if characters enabled on test output.  |
| GPS                     | On/off                        |            | Future option  |
| <b>06 ! LED</b>         |                               |            |  |
| GAIN                    | On/off                        |            | There's a warning ! marker that will appear in the viewfinder according to the way this page is set.   |
| SHUTTER                 | On/off                        | Off        | If you set an item to 'on', then the ! will appear if that function is   |
| WHITE PRESET            | On/off                        | Off        |  |
| ATW RUN                 | On/off                        |            |  |
| EXTENDER                | On/off                        |            |  |
| FILTER                  | On/off                        | Off        |  |
| OVERRIDE                | On/off                        |            |  |
| <b>07 MARKER 1</b>      |                               |            |  |
| MARKER                  | On/off                        |            |  |
| CENTRE                  | On/off                        |            |  |
| CENTRE MARK             | 1 to 4 (3)                    |            |  |
| SAFETY ZONE             | On/off                        |            |  |
| SAFETY AREA             | 80 /90 /92.5 / 95 %           |            |  |
| ASPECT                  | On/off                        |            |  |
| ASPECT SELECT           | 14:9, 13:9, 4:3, Vista, Scope |            |  |
| ASPECT MASK             | On/off                        |            | Turns on / off the 'greyed out' side panels outside the aspect ratio mask selected .   |
| ASPECT MASK LVL         | 0 to 8                        |            | Sets the degree to which areas outside the aspect markers are greyed out   |
| 100% MARKER             | On/off                        |            |  |

|                      |                       |               |   |
|----------------------|-----------------------|---------------|---|
| <b>08 MARKER 2</b>   |                       |               |   |
| USER BOX             | On / Off              |               | You can draw a box cursor in the viewfinder, any size and position.   |
| USER BOX WIDTH       | 240                   |               |   |
| USER BOX HEIGHT      | 135                   |               |   |
| USER BOX H POS       | 0                     |               |   |
| USER BOX V POS       | 0                     |               |   |
| CENTER H POS         |                       |               |   |
| CENTER V POS         |                       |               |   |
| ASPECT SAFE ZONE     |                       |               | Turns ON/OFF the SAFETY ZONE MARKER display with respect to the ASPECT MARKER.  |
| ASPECT SAFE AREA     |                       |               | Selects the ranges of the SAFETY ZONE MARKER display with respect to the ASPECT MARKER.   |
| <b>09 GAIN SW</b>    |                       |               |   |
| LOW                  | -3 to 42dB (0)        | <b>[-3dB]</b> | Generally leave at '0'. Dynamic range slightly reduced at -3dB.   |
| MID                  | -3 to 42dB (6)        |               |   |
| HIGH                 | -3 to 42dB (12)       |               |   |
| TURBO                | -3 to 42dB (42)       | -3dB          | Unlikely to use 42dB...you could set this switch to -3dB.   |
| TURBO SW IND         | On/off                |               |   |
| <b>10 VF SETTING</b> |                       |               |   |
| ZEBRA                | On/off                |               | Only use if you have a viewfinder without a front on/off switch   |
| ZEBRA SELECT         | Zebra 1, 2 or BOTH    |               | Usually set zebra 1 at 70% and 2 at 95%. Gets a bit busy if you use both. Don't try and rationalize the numbers below. We know it should be a direct % equivalent, but it isn't. Sorry. Maybe future software version will sort it out. |
| ZEBRA1 DET LVL       | 1 to 100% (0)         | 0=70%         | -15=65%, 0=70%, +19=75%, +90=95%, +110=100% (subject to small variations between cameras)   |
| ZEBRA2 DET LVL       | 1 to 100% (0)         | 0=98%         | -72=90%, -25=95%, 0=98%, +20=100%   |
| ASPECT               | Off                   |               |   |
| VF DETAIL LVL        | -99 to 99 (0)         |               |   |
| VF DETAIL H LVL      | -99 to 99 (0)         |               |   |
| VF DETAIL V LVL      | -99 to 99 (0)         |               |   |
| <b>11 AUTO IRIS</b>  |                       |               |   |
| OVERRIDE             | Off                   |               |   |
| SPEED                | 2                     |               |   |
| CLIP HIGH LIGHT      | Off                   |               |   |
| WINDOW               | 1                     |               |   |
| WINDOW IND           | Off                   |               |   |
| VARIABLE WIDTH       | 240                   |               |   |
| VARIABLE HEIGHT      | 135                   |               |   |
| H POS                | 0                     |               |   |
| V POS                | 0                     |               |   |
| <b>12 SHOT ID</b>    |                       |               |   |
| ID-1                 |                       |               | Four different sets of characters can be saved here, any one of which can be selected to be recorded in meta-data. Selection of which ID you want to use is via the next page.  |
| ID-2                 |                       |               |   |
| ID-3                 |                       |               |   |
| ID-4                 |                       |               |   |
| <b>13 SHOT DISP</b>  |                       |               |   |
| DATE                 | On/off                | On            |   |
| TIME MODEL           | On/off                | On            |   |
| MODEL NAME           | On/off                | On            |   |
| SERIAL NO.           | On/off                | On            |   |
| ID SELECT            | On/off                |               |   |
| SHOT BLINK CHCTR     |                       |               |   |
| <b>14 SET STATUS</b> |                       |               |   |
| STATUS ABNORML       | On/off                |               | Pushing up the toggle switch on the side of the camera pages through a number of status display pages. [useful for checking frame rate or audio inputs]. You can delete some of these pages if you don't find them useful.              |
| STATUS FUNC.         | On/off                |               |   |
| STATUS AUDIO         | On/off                |               |   |
| STATUS GPS           |                       |               |   |
| <b>15 TEST OUT</b>   |                       |               |   |
| MARKERS              | On/off                | On            | Sets what you see out of the 'TEST' BNC connector on the side of the camera.  |
| VF DISPLAYS          | On/off                | On            |   |
| MENUS                | On/off                | On            |   |
| ZEBRA                | On/off                |               |   |
| OUTPUT SELECT        | Y/R/G/B               |               |   |
| <b>16 OFFSET WHT</b> |                       |               |   |
| OFFSET WHITE A       | On/off                |               | You can tell the auto white balance to always add an offset to its result.  |
| WARM / COOL A        | Kelvin reading (3200) |               | A bit like putting a ¼ blue gel in front of the camera and then removing it after white balancing.  |
| COLOUR FINE A        | -99 to 99 (0)         |               |   |
| OFFSET WHITE B       | Off/on                |               |   |
| WARM / COOL B        | Kelvin reading (3200) |               |   |
| COLOUR FINE B        | -99 to 99 (0)         |               |   |

|                          |                    |              |   |
|--------------------------|--------------------|--------------|---|
| <b>17 SHUTTER ENABLE</b> |                    |              |   |
| ECS                      | On/off             |              | Electronic clear-scan. Continuously variable shutter used for example to eliminate flicker from CRT computer monitors |
| 1/33                     | On/off             |              | You can eliminate any shutter speed options you never use.  |
| 1/50                     | On/off             |              | (Saves time when selecting a shutter speed with the toggle switch on the front of the camera.)                        |
| 1/60                     | On/off             |              |   |
| 1/125                    | On/off             |              |   |
| 1/250                    | On/off             |              |   |
| 1/500 1/1000             | On/off             |              |   |
| <b>18 LENS FILE</b>      |                    |              |   |
| LENS FILE SELECT         | 1                  |              |   |
| F. ID                    |                    |              |   |
| F. STOP                  | 1.7                |              |   |
| <b>19 UMID SET</b>       |                    |              |   |
| EX OWNERSHIP REC         |                    |              | Unique material Identification information. Recorded in meta data to uniquely identify all recordings.                |
| COUNTRY CODE             |                    |              |   |
| ORGANIZATION CODE        |                    |              |   |
| USER CODE                |                    |              |   |
| INSTANCE NO.             |                    |              |   |
| TIME ZONE                |                    |              |   |
| MACHINE                  |                    |              |   |
| <b>20 GPS SETUP</b>      |                    |              |   |
| GPS                      |                    |              | There is a GPS option for these camcorders that will record location of all recordings in meta data.                  |
| GPS RELOAD(MS)           |                    |              |   |
| GPS TRACE                |                    |              |   |
| TRACE INTERVAL           |                    |              |   |
| TIME ZONE                |                    |              |   |
| GPS DATUM                |                    |              |   |
| GPS 8 PIN FORMAT         |                    |              |   |
| <b>PAINT MENU</b>        |                    |              |   |
| <b>01 SW STATUS</b>      |                    |              |   |
| GAMMA                    | Off/on             |              | Switch various functions on and off. Generally leave them as factory set,   |
| BLACK GAMMA              | Off/on             |              |   |
| MATRIX                   | Off/on             |              | .... except for matrix, which is usually switched on. See main matrix page in paint menu.                             |
| KNEE                     | Off/on             |              |   |
| WHITE CLIP               | Off/on             |              |   |
| DETAIL                   | Off/on             |              |   |
| APERTURE                 | Off/on             |              |   |
| FLARE                    | Off/on             |              |   |
| EVS                      | Off/on             |              |   |
| TEST SAW                 | Off/on             |              |   |
| <b>02 WHITE</b>          |                    |              |   |
| COLOUR TEMP A            | Temperature (3200) |              | Tells you the colour temperature of the white balances stored in memories A and B                                     |
| COLOUR FINE A            | -99 to 99 (0)      |              | You can manually adjust these values on this page.  |
| R GAIN A                 | -99 to 99 (0)      |              |   |
| B GAIN A                 | -99 to 99 (0)      |              |   |
| COLOUR TEMP B            | Temperature (3200) |              |   |
| COLOUR FINE B            | -99 to 99 (0)      |              |   |
| R GAIN B                 | -99 to 99 (0)      |              |   |
| B GAIN B                 | -99 to 99 (0)      |              |   |
| <b>03 BLACK</b>          |                    |              |   |
| MASTER BLACK             | -99 to 99 (0)      | <b>[-1]</b>  | Master black lifts or darkens low luminance areas of the picture. Also known as pedestal.                             |
| R BLACK                  | -99 to 99 (0)      |              | Individual colour blacks change the colour balance in low luminance areas.  |
| B BLACK                  | -99 to 99 (0)      |              |   |
| MASTER FLARE             | -99 to 99 (0)      |              |   |
| R FLARE                  | -99 to 99 (0)      |              |   |
| G FLARE                  | -99 to 99 (0)      |              |   |
| B FLARE                  | -99 to 99 (0)      |              |   |
| FLARE                    | Off/on             |              |   |
| OUTPUT SELECT            | Y/R/G/B            |              |   |
| <b>04 GAMMA</b>          |                    |              |   |
| GAMMA                    | Off/on             |              |   |
| MASTER GAMMA             | -99 to 99 (0)      |              | Master gamma lifts or darkens mid luminance areas of the picture.   |
| R GAMMA                  | -99 to 99 (0)      |              | Individual colour gammas change the colour balance in mid luminance areas.  |
| G GAMMA                  | -99 to 99 (0)      |              |   |
| B GAMMA                  | -99 to 99 (0)      |              |   |
| OUTPUT SELECT            | Y/R/G/B            |              | Engineering control for looking at individual channels during lineup.   |
| GAM SELECT STD           | STD/FILM           | <b>[2]</b> 3 | <b>1</b> Digi Beta (3x), <b>2</b> SMPTE 240M (4x), <b>3</b> ITU 709 (4.5x), <b>4</b> BBC (5x)                         |
| GAM SELECT FILM          | 1 to 4 (3)         | 3            | <b>1</b> 5248 <b>2</b> 5245 <b>3</b> 5293 <b>4</b> 5296   |

|                         |                      |            |  |
|-------------------------|----------------------|------------|--|
| <b>05 BLK GAMMA</b>     |                      |            |  |
| BLACK GAMMA             | Off/On               | [on]       | Black gamma changes the initial slope of the gamma curve , only in the blacks.                         |
| BLK GAMMA RANGE         | Low/L.mid/h.mid/high | [High]     |  |
| MASTER BLK GAMMA        | -99 to 99 (0)        | [22]       |  |
| R BLK GAMMA             | -99 to 99 (0)        |            |  |
| G BLK GAMMA             | -99 to 99 (0)        |            |  |
| B BLK GAMMA             | -99 to 99 (0)        |            |  |
| OUTPUT SELECT           | Y/R/G/B              |            |  |
| <b>06 KNEE</b>          |                      |            |  |
| KNEE                    | Off/on               |            | Usually leave the knee switched on.  |
| KNEE POINT              | 50 to 109 (95)       | [50] 90    | Sets where, as a percentage of the luminance scale, the knee starts to act.                            |
| KNEE SLOPE              | -99 to 99 (0)        | [-136] -10 | Sets how much compression is applied by the knee circuit.  |
| KNEE SAT.               | Off/on               | [on]       | Increases colour saturation in picture areas compressed by the knee, in proportion for RGB             |
| KNEE SAT LEVEL          | -99 to 99 (0)        | [70]       |  |
| WHITE CLIP              | Off/on               |            |  |
| WHITE CLIP LEVEL        | 100.0 to 109.5 (105) | [109.5]    | Normally set to about 104 for BBC / ITV preferred levels.  |
| <b>07 DETAIL 1</b>      |                      |            |  |
| DETAIL                  | Off/on               |            |  |
| APERTURE                | Off/on               |            |  |
| DETAIL LVL              | -99 to 99 (0)        | -20        | Factory setting of '0' is a bit harsh. Normally turn down to between -20 and -30                       |
| APERTURE LVL            | 0 to 15 (0)          |            | (don't turn detail level below -70...it starts to look artificially soft.)                             |
| H/V RATIO               | -99 to 99 (0)        |            |  |
| CRISPENING              | -99 to 99 (0)        |            |  |
| LEVEL DEP               | Off/on               |            |  |
| LEVEL DEP LVL           | -99 to 99 (0)        |            |  |
| DETAIL FREQ             | -99 to 99 (0)        |            |  |
| <b>08 DETAIL 2</b>      |                      |            |  |
| KNEE APERTURE           | Off                  |            | Knee aperture adds detail edges only to highlight areas compressed by the knee circuit.                |
| KNEE APT LVL            | 0                    |            |  |
| DETAIL WHITE LIMIT      | 0                    | [-175]     | Limits positive going (white halo) detail overshoots   |
| DETAIL BLACK LIMIT      | 0                    | [-142]     | Limits negative going detail overshoots  |
| DETAIL V-BLK LIMIT      | 0                    | [34]       |  |
| <b>09 SD DETAIL</b>     |                      |            |  |
| SD DETAIL               | Off/on               |            | There is a separate detail circuit for the down-converted SD output. Doesn't affect recorded pictures. |
| SD DETAIL LVL           | -99 to 99 (0)        | -10        |  |
| SD CRISPENING           | -99 to 99 (0)        |            |  |
| SD DETAIL WHITE LIMIT   | 0 to 15 (0)          |            |  |
| SD DETAIL BLACK LIMIT   | -99 to 99 (0)        |            |  |
| SD LEVEL DEP            | -99 to 99 (0)        |            |  |
| SD LEVEL DEP LVL        | Off/on               |            |  |
| SD DETAIL FREQ          | -99 to 99 (0)        | +50        |  |
| SD H/V RATIO            | -99 to 99 (0)        |            |  |
| <b>10 SKIN DETAIL</b>   |                      |            |  |
| SKIN DETAIL ALL         | Off                  |            | Skin detail can key out a particular colour tone and reduce detail levels in that area.                |
| SKIN DETECT             |                      |            | Position the on screen marker over the colour to be corrected and select the auto detect function.     |
| SKIN AREA IND           | Off                  |            | Displays a zebra type pattern over the areas selected for correction.                                  |
| SKIN DTL SELECT         | 1                    |            | 3 different settings can be remembered.  |
| SKIN DETAIL             | On                   |            |  |
| SKIN DTL LVL            | 0                    |            | Set the amount of detail to be removed (or added) here.  |
| SKIN DTL SAT            | 0                    |            | Manually select the colour saturation to be targeted.  |
| SKIN DTL HUE            | 0                    |            | Manually select the colour hue to be targeted.   |
| SKIN DTL WIDTH          | 40                   |            | Manually select the width of the range of colours to be targeted.                                      |
| <b>11 LINEAR MATRIX</b> |                      |            |  |
| MATRIX                  | Off/on               |            |  |
| MATRIX ( USER)          | Off/on               | [On]       |  |
| MATRIX ( PRESET)        | Off/on               | [Off] On   |  |
| MATRIX ( PRST SEL)      | 1-2-3-4-5-6          | 2          | 1 SMPTE-240M, 2 ITU-709, 3 SMPTE Wide, 4 NTSC ,5 EBU, 6 ITU-609  |
| MATRIX ( USER) R-G      | -99 to 99 (0)        | [-53]      |  |
| MATRIX ( USER) R-B      | -99 to 99 (0)        | [0]        |  |
| MATRIX ( USER) G-R      | -99 to 99 (0)        | [-5]       |  |
| MATRIX ( USER) G-B      | -99 to 99 (0)        | [-6]       |  |
| MATRIX ( USER) B-R      | -99 to 99 (0)        | [-1]       |  |
| MATRIX ( USER) B-G      | -99 to 99 (0)        | [-9]       |  |
| <b>12 MULTI MATRIX</b>  |                      |            |  |
| MATRIX                  | Off/on               |            |  |
| MULTI MATRIX            | Off/on               |            | The multi-matrix can pick up on a particular colour in a scene and change its hue and saturation       |
| AREA IND                | Off/on               |            | A zebra type pattern can be superimposed on targeted areas of colour                                   |
| COLOUR DETECT           |                      |            |  |
| AXIS                    |                      |            | B/B+/MG-/MG/ MG+/R/R+/YL-YL+/G-/G/ /G+/CY/CY+/B-   |
| HUE                     | -99 to 99 (0)        |            |  |
| SATURATION              | -99 to 99 (0)        |            |  |

|                         |                      |         |   |
|-------------------------|----------------------|---------|---|
| <b>13 V MOD</b>         |                      |         |   |
| VMOD                    | Off/on               |         |   |
| MASTER VMOD             | -99 to 99 (0)        |         |   |
| R VMOD                  | -99 to 99 (0)        |         |   |
| G VMOD                  | -99 to 99 (0)        |         |   |
| B VMOD                  | -99 to 99 (0)        |         |   |
| OUTPUT SELCT            | Y/R/G/B              |         |   |
| <b>14 LOW KEY SAT</b>   |                      |         |   |
| LOW KEY SAT             | Off/on               |         | Used to increase colour saturation in low luminance areas of picture.           |
| LEVEL                   | -99 to 99 (0)        |         | Use with care, as effect on one scene may not look good for a different scene.  |
| RANGE                   | Low/L.mid/h.mid/high |         | LOW : 0 to 3.6 % L.MID : 0 to 7.2 % H.MID : 0 to 14.4% HIGH : 0 to 28.8 %       |
| Y BLK GAMMA             | Off/on               | [On]    |   |
| Y BLK GAMMA LVL         | -99 to 99 (0)        | [31]    |   |
| Y BLK GAMMA RANGE       | Low/L.mid/h.mid/high | [H.Mid] |   |
| <b>15 SCENE FILE</b>    |                      |         |   |
| 1 TO 5                  |                      |         | This is the same scene file page that can also be accessed from the FILE menu.  |
| STANDARD                |                      |         |   |
| SCENE RECALL            |                      |         |   |
| SCENE STORE             |                      |         |   |
| FILE ID                 |                      |         |   |
| <b>MAINTENANCE MENU</b> |                      |         |   |
| <b>01 WHT SHADING</b>   |                      |         |   |
| SHADING CH SELECT       | R/G/B                |         |   |
| OUTPUT SELECT           | Y/R/G/B              |         |   |
| RGB WHITE H SAW         | -99 to 99            |         |   |
| RGB WHITE H PARABOLA    | -99 to 99            |         |   |
| RGB WHITE V SAW         | -99 to 99            |         |   |
| RGB WHITE V PARA        | -99 to 99            |         |   |
| WHITE SAW/PARA          | Off/on               |         |   |
| <b>02 BLK SHADING</b>   |                      |         |   |
| SHADING CH SELECT       | R/G/B                |         |   |
| OUTPUT SELECT           | Y/R/G/B              |         |   |
| RGB BLACK H SAW         | -99 to 99            |         |   |
| RGB BLACK H PARABOLA    | -99 to 99            |         |   |
| RGB BLACK V SAW         | -99 to 99            |         |   |
| RGB BLACK V PARA        | -99 to 99            |         |   |
| BLACK SAW/PARA          | Off/on               |         |   |
| MASTER BLACK            | 0                    |         |   |
| MASTER GAIN (TMP)       | 0                    |         |   |
| <b>03 LEVEL ADJ</b>     |                      |         |   |
| Y LVL                   | -99 to 99            |         |   |
| SYNC LVL                | -99 to 99            |         |   |
| Pr LVL                  | -99 to 99            |         |   |
| Pb LVL                  | -99 to 99            |         |   |
| TEST SAW                | Off/analog/digital   |         |   |
| OUTPUT SELECT           | Y/R/G/B              |         |   |
| <b>04 SD LEVEL ADJ</b>  |                      |         |   |
| SD VBS LVL              | -99 to 99            |         |   |
| SD VBS SETUP LVL        | 0% / 7.5%            |         |   |
| SD VF Y LVL             | -99 to 99            |         |   |
| SD VF R-Y LVL           | -99 to 99            |         |   |
| SD VF B-Y LVL           | -99 to 99            |         |   |
| <b>05 BATTERY</b>       |                      |         |   |
| BEFORE END 1            | 5%                   |         |   |
| END 1                   | 0%                   |         |   |
| BEFORE END 2            | 11.3V                |         |   |
| END 2                   | 11.0V                |         |   |
| BEFORE END 3            | 11.8V                |         |   |
| END 3                   | 11.0V                |         |   |
| <b>06 VTR MODE 1</b>    |                      |         |   |
| VIDEO OUT (F/R)         | EE/PB                |         |   |
| AUDIO OUT (F/R)         | CUE/EE               |         |   |
| REC AUDIO OUT           | EE/SAVE              |         |   |
| CAMERA ADAPTER          | ENABLE/DISABLE       |         |   |
| AUDIO CH 3/4 MODE       | CH 1/2 or SW         |         |   |
| REAR XLR AUTO           | Off/on               |         | Automatically records the input from a rear XLR if there is anything connected. |
| FRONT MIC REF           | -60dB                |         |   |
| REAR MIC 1 REF          | -60dB                |         |   |
| REAR MIC 2 REF          | -60dB                |         |   |

|                        |  |       |   |
|------------------------|--|-------|---|
| <b>07 VTR MODE 2</b>   |  |       |   |
| AU REC EMPHASIS        | Off/on   |       |   |
| CUE REC                | Off/on   |       |   |
| AU REF LVL             | -18dB/-20dB  |       |   |
| AU REF OUT             | 0dB/+4dB/-3dB                                      |       |   |
| AU SG 1KHz             | Off/on/auto  |       |   |
| MIC CH1 LVL            | Side1/front/f+S1                                   |       |   |
| MIC CH2 LVL            | Side2/front/f+S2                                   |       |   |
| REAR1 WRR LVL          | Side1/front/f+S1                                   |       |   |
| REAR2 WRR LVL          | Side2/front/f+S2                                   |       |   |
| <b>08 VTR MODE 3</b>   |  |       |   |
| TC OUT                 | Auto/gene  |       |   |
| DF/NDF                 | DF/NDF   |       |   |
| EXT-LK DF/NDF          | Int/ext  |       |   |
| EXT-LK UBIT            | Int/Ext  |       |   |
| LTC UBIT               | Fix/time   |       |   |
| VITC UBIT              | Fix/time   |       |   |
| WATCH AUTO ADJ         | Off/on   |       |   |
| UBIT GROUP ID          | 000/101  |       |   |
| <b>09 VTR MODE 4</b>   |  |       |   |
| REC TALLY BLINK        | Off/on   |       |   |
| REC START STOP         | Off/on   |       |   |
| MODE SELECT            | Sel/off/cont                                       |       |   |
| TIMER SET              | 1h/3h/8h   |       |   |
| STBY OFF TIMER         | Off/5min/10min/30min/60min                         | 5 min |   |
| STOP KEY FREEZE        | Dsabl/frame /field                                 |       |   |
| <b>10 VTR MODE 5</b>   |  |       |   |
| LTC UB MARKER          | set/all/off  |       |   |
| REC START MARKER       | Off/on   |       |   |
| SHOT MARKER 1          | Off/on   |       |   |
| SHOT MARKER 2          | Off/on   |       |   |
| SHOT TIME DISP         | Md:hm/dm:hm/d:hms                                  |       |   |
| <b>11 PRESET WHITE</b> |  |       |   |
| COLOUR TEMP <P>        | 3200   |       | Dial in a value for the PRESET white balance setting.   |
| COLOUR FINE <P>        | -99 to 99 (0)                                      |       |   |
| R GAIN <P>             | -99 to 99 (0)                                      |       |   |
| B GAIN <P>             | -99 to 99 (0)                                      |       |   |
| AWB ENABLE             | Off/on   |       |   |
| <b>12 DCC</b>          |  |       |   |
| DCC FUNCTION SELECT    | DCC/adaptive knee /fix                             | Fix   |   |
| DCC RANGE              | 600%   |       |   |
| DCC POINT              | -99 to 99 (0)                                      |       |   |
| DCC GAIN               | -99 to 99 (0)                                      |       |   |
| DCC PEAK FILTER        | 0 to 3 (0)   |       |   |
| DCC DELAY TIME         | -99 to 99 (0)                                      |       |   |
| PRE-KNEE POINT         | FIX / AUTO   | [FIX] | Set to FIX if setting up for film transfer mode, and then enter the rest of the [ ] settings. |
| <b>13 AUTO IRIS 2</b>  |  |       |   |
| IRIS WINDOW            | 1/2/3/4/5/6/ variable                              |       |   |
| IRIS WINDOW IND        | Off/on   |       |   |
| IRIS LEVEL             | -99 to 99 (0)                                      |       |   |
| IRIS APL RATIO         | -99 to 99 (0)                                      |       |   |
| IRIS VAR WIDTH         | 20 to 479 (240)                                    |       |   |
| IRIS VAR HEIGHT        | 20 to 269 (135)                                    |       |   |
| IRIS VAR H POS         | -480 to 479 (0)                                    |       |   |
| IRIS VAR V POS         | -270 to 269 (0)                                    |       |   |
| IRIS SPEED             | 0/1/2/3/4/5  |       |   |
| CLIP HIGH LIGHT        | Off/on   |       |   |
| <b>14 FUNCTION 3</b>   |  |       |   |
| WHITE FILTER INH       | Off/on   |       |   |
| COLOUR BAR SEL         | SMPTE/100%/ 75%/ 100% (4:3) SMPTE (4:3)/ 75% (4:3) |       | SMPTE bars have the advantage of a simple PLUGE signal for monitor lineup.                    |
| RM COMMON MEMORY       | Off  |       |   |
| VTR STOP/START         | RM   |       |   |
| USER AND ALL ONLY      | OFF  |       |   |
| <b>15 GENLOCK</b>      |  |       |   |
| GENLOCK                | Off/on   |       |   |
| RETURN VIDEO           | Off/on   |       |   |
| GL H PHASE COASE       | -99 to 99 (0)                                      |       |   |
| GL H PHASE FINE        | -99 to 99 (0)                                      |       |   |

|                          |                 |  |  |
|--------------------------|-----------------|--|--|
| <b>16 ND COMP</b>        |                 |  |  |
| ND OFFSET ADJUST         | Off/on          |  |  |
| CLEAR ND OFFSET          | Exec            |  |  |
| ND ADJUST MODE           |                 |  |  |
|                          |                 |  |  |
| <b>17 FORMAT</b>         |                 |  |  |
| CURRENT                  |                 |  |  |
| NEXT                     | 50i / 25p       |  |  |
|                          |                 |  |  |
| <b>18 VANC RX</b>        |                 |  |  |
| UMID LINE 1              | 0               |  |  |
| UMID LINE 2              | 0               |  |  |
|                          |                 |  |  |
| <b>FILE MENU</b>         |                 |  |  |
| <b>01 USER FILE</b>      |                 |  |  |
| USER FILE LOAD           | Off/on          |  |  |
| USER FILE SAVE           | Off/on          |  |  |
| F ID                     | Off/on          |  |  |
| USER PRESET              | Off/on          |  |  |
|                          |                 |  |  |
| <b>02 USER FILE 2</b>    |                 |  |  |
| STORE USER PRESET        |                 |  |  |
| CLEAR USER PRESET        |                 |  |  |
| CUSTOMISE RESET          |                 |  |  |
| LOAD CUSTOM DATA         | Off             |  |  |
| LOAD OUT OF USER         | Off             |  |  |
| BEFORE FILE PAGE         | Off             |  |  |
| USER LOAD WHITE          | Off             |  |  |
|                          |                 |  |  |
| <b>03 ALL FILE</b>       |                 |  |  |
| ALL FILE LOAD            |                 |  |  |
| ALL FILE SAVE            |                 |  |  |
| F ID                     |                 |  |  |
| ALL PRESET               |                 |  |  |
| STORE ALL PRESET         |                 |  |  |
| CLEAR ALL PRESET         |                 |  |  |
| 3SEC CLR PRESET          | Off             |  |  |
|                          |                 |  |  |
| <b>04 SCENE FILE</b>     |                 |  |  |
| 1                        |                 |  |  |
| 2                        |                 |  |  |
| 3                        |                 |  |  |
| 4                        |                 |  |  |
| 5                        |                 |  |  |
| STANDARD                 |                 |  |  |
| SCENE RECALL             |                 |  |  |
| SCENE STORE              |                 |  |  |
| F ID                     |                 |  |  |
|                          |                 |  |  |
| <b>05 REFERENCE FILE</b> |                 |  |  |
| REFERENCE STORE          |                 |  |  |
| REFERENCE CLEAR          |                 |  |  |
| REFERENCE LOAD           |                 |  |  |
| REFERENCE SAVE           |                 |  |  |
| F ID                     |                 |  |  |
| SCENE WHITE DATA         | Off             |  |  |
|                          |                 |  |  |
| <b>06 LENS FILE 1</b>    |                 |  |  |
| LENS FILE RECALL         |                 |  |  |
| LENS FILE STORE          |                 |  |  |
| F ID                     |                 |  |  |
| F STOP                   | 1.7             |  |  |
| LENS NO OFFSET           |                 |  |  |
| SOURCE MEMORY            |                 |  |  |
|                          |                 |  |  |
| <b>07 LENS FILE 2</b>    |                 |  |  |
| LENS M V MOD             | -99 to 99 (0)   |  |  |
| LENS CENTRE H            | -480 to 479 (0) |  |  |
| LENS CENTRE V            | -270 to 269 (0) |  |  |
| OUTPUT SELECT            | Y/R/G/B         |  |  |
| LENS R FLARE             | -99 to 99 (0)   |  |  |
| LENS G FLARE             | -99 to 99 (0)   |  |  |
| LENS B FLARE             | -99 to 99 (0)   |  |  |
| LENS W-R OFFSET          | -99 to 99 (0)   |  |  |
| LENS W-B OFFSET          | -99 to 99 (0)   |  |  |
|                          |                 |  |  |

|                         |                                |  |   |
|-------------------------|--------------------------------|--|---|
| <b>08 LENS FILE 3</b>   |                                |  |   |
| SHADING CH SEL          | R/G/B                          |  |   |
| OUTPUT SEL              | Y/R/G/B                        |  |   |
| LENS RGB H SAW          | -99 to 99 (0)                  |  |   |
| LENS RGB H PARA         | -99 to 99 (0)                  |  |   |
| LENS RGB V SAW          | -99 to 99 (0)                  |  |   |
| LENS RGB V PARA         | -99 to 99 (0)                  |  |   |
| <b>09 MEMORY STICK</b>  |                                |  |   |
| FORMAT                  | Off/user/all/ scene/lens refer |  |   |
| MS IN > JUMP TO         |                                |  |   |
| <b>10 TELEFILE</b>      |                                |  |   |
| TELEFILE CLEAR          |                                |  |   |
| TELEFILE MARK           | OK                             |  |   |
| ID                      |                                |  |   |
| SIZE                    |                                |  |   |
| REMAIN                  |                                |  |   |
| STATUS                  |                                |  |   |
| <b>DIAGNOSTICS MENU</b> |                                |  |   |
| <b>01 HOURS METER</b>   |                                |  |   |
| RESET METER             |                                |  |   |
| DRUM RUNNING            |                                |  |   |
| TAPE RUNNING            |                                |  |   |
| OPERATION               |                                |  |   |
| THREADING               |                                |  |   |
| DRUM RUNNING 2          |                                |  |   |
| TAPE RUNNING 2          |                                |  |   |
| OPERATION 2             |                                |  |   |
| THREADING 2             |                                |  |   |
| <b>02 TIME / DATE</b>   |                                |  |   |
| ADJUST                  |                                |  | Worth setting the clock, as it makes setting the timecode to time of day very easy.                           |
| HOUR                    |                                |  |   |
| MIN                     |                                |  |   |
| SEC                     |                                |  |   |
| YEAR                    |                                |  |   |
| MONTH                   |                                |  |   |
| DAY                     |                                |  |   |
| <b>03 ROM VERSION</b>   |                                |  |   |
| AT VER: XXX             |                                |  | The AT version is the main software version.  |
| SS VER: XXX             |                                |  |   |
| FP VER: XXX             |                                |  |   |
| EQ VER: XXX             |                                |  |   |
| <b>04 DEV STATUS</b>    |                                |  |   |
| I/O EEPROM LSI          |                                |  |   |
| <b>05 OPTION BOARD</b>  |                                |  |   |
| DOWN CONVERTER          |                                |  | <input type="radio"/> Means you've got the option installed <input type="checkbox"/> Means it's not installed |
| HD SDI OUTPUT           |                                |  | Always installed as standard.   |
| PICTURE CACHE           |                                |  | Does the timelapse and loop recording   |
| SLOW SHUTTER            |                                |  | Blurry long exposure effect. Also works well in conjunction with timelapse.                                   |