Venus UTPR

(Underwater Timed Picture Recorder)

Operation Manual

2003-10-04 version 3d

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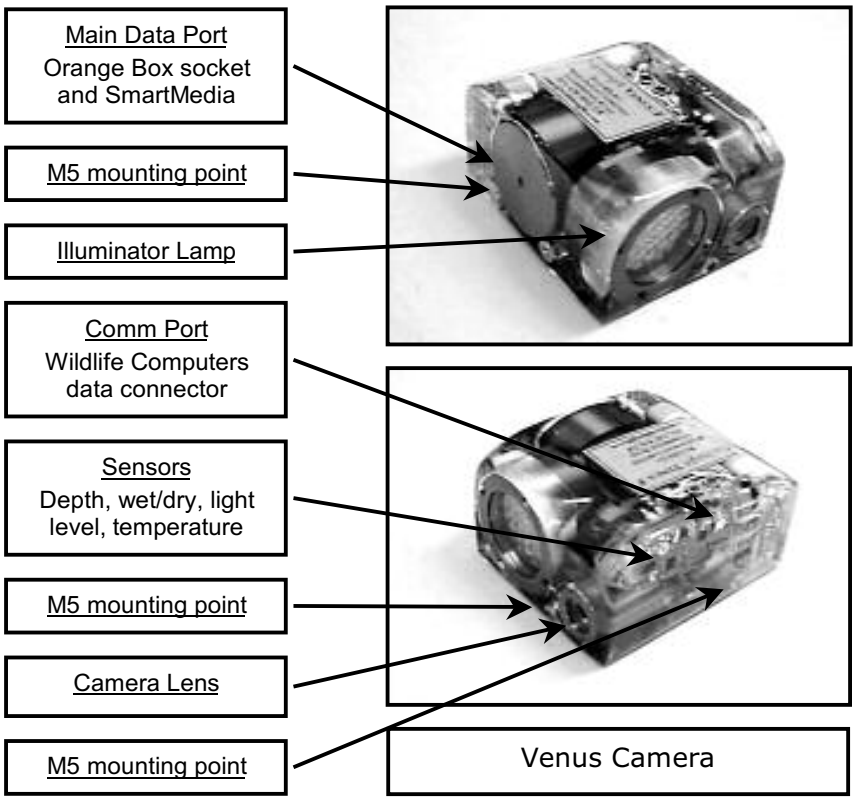
Introduction

The Venus UTPR System has two major components – The Venus Camera and the Orange Box docking station.



There are two removable covers on the Venus Camera – the main data port has a large black metal one, and the Wildlife Computers comm port has a small white Teflon one. Inside the main data port there is a 2x20 way connector for the Venus Deployment Plug and for attaching the Orange Box to the Camera. The SmartMedia Card, which stores the picture files, is inserted into a slot within the data port. The largest card that will work in this system is 64Mbyte.

In addition, a Wildlife Computers communications Blue Box is needed, and a PC with the latest *MK9host* software installed.

An external power source is needed for setting up and for recharging the system. Either 100-240VAC 47-63Hz 0.7A, or 12VDC 2A.

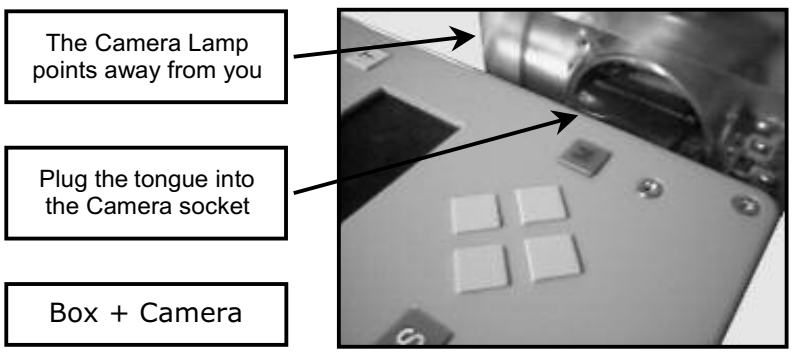
Setting-up the Recorder for Deployment

1. Make sure the camera is completely dry:
    a. Thoroughly **dry the outside of the camera** with a paper towel
    b. Use paper towel to mop up any dribbles of water that may be trapped around the edge of the data port as the cover is removed
    c. Keep the camera on its side while removing the data port cover to stop any trapped water running back into the data port

2. Remove the data port cover:
    a. Remove the 2 retaining screws **put them somewhere safe**
    b. Attach the long handle to the cover
    c. Remove with a straight pull and slight rotation
3. Remove the Wildlife Computers comm port plug:
    a. See Wildlife Computers Mk9 Instruction Guide
    b. Remove the white plug
    c. Keep the plug clean and **put it somewhere safe**
    d. Blow out any water
4. Remove the deployment plug if necessary:
    a. Attach the short handle to the plug
    b. Remove with a straight pull and very small gentle rocking motions
    c. Keep the plug clean and **put it somewhere safe**
5. Make sure that a 3.3V SmartMedia Card is inserted in the slot below the 2x20 way connector; the gold contacts on the card must face away from the connector

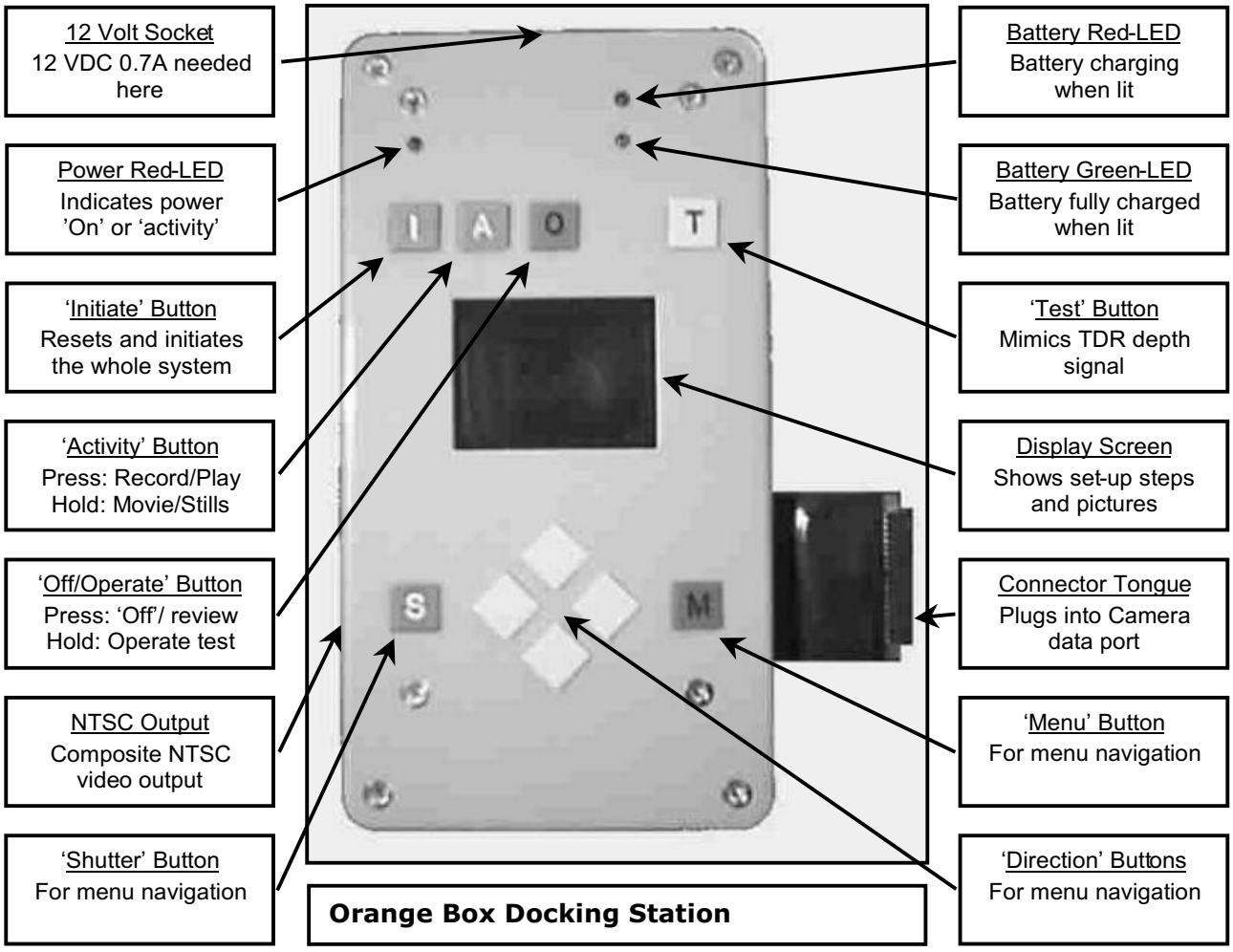
Inserting SmartMedia Card - gold contacts away from the 2x20

6. Place the Orange Box on the lower part of the Black baseboard
7. Place the Camera on the raised part of the baseboard. Turn it so that the Lamp is pointing away from you and its data port is facing the Orange box connector tongue.
8. Slide the camera across the baseboard so that the Orange box connector tongue plugs firmly into the 2x20 way socket in the Camera data port. Make sure that the tongue is fully seated into the socket.
(**Check**: no LEDs should be illuminated at this stage).



9. Plug the 12V power cord into the Orange box, and the box will work through its start-up sequence:
    a. Power Red-LED (left hand red LED) flashes for 45 seconds and then stays on. The flashes indicate that the system is 'BUSY' checking the SmartMedia Card for errors, then programming the Camera with whatever actions are currently 'set'.
    b. The Display Screen shows whatever the Camera can see now, with screen indicators showing which modes are set. If the CLOCK menu is displayed: set it (changing the day anyway if it seems "stuck"); press 'M' to EXIT; then press 'I' to restart.
    c. Press the 'Left' direction button to show the PIX_RATE (time between still pictures) setting. The Power Red-LED flashes once for each 3 second multiple.
    d. Press the 'Right' direction button to show the OFF_DELAY (time taking pictures or time waiting before turning off) setting. This time the Camera LED flashes once for each 1 minute multiple.

    The Battery Red-LED (right hand red LED) turns on if the battery needs charging. And the Battery Green-LED will turn on when the battery is fully charged.
10. You can now use the buttons to set-up the system. The various buttons, LEDs and connectors on the Orange box are identified below.



Button 'I': 'Initiates' or resets the Orange Box. This repeats the start-up sequence. It can be pressed at any time since it over-rides the rest of the system.

Button 'A': Selects the 'Activity'. One press toggles between 'record' and 'playback'. Press and hold toggles between 'movie' and 'stills'.

Button 'O': Will either turn 'Off' the Orange Box:

- One press in 'playback' mode will flash the Power Red-LED then turn the box 'Off'. The Power Red-LED remains lit if 12VDC is plugged in. Battery charging will continue if needed.
- One press in 'record' mode after the initial start-up sequence will also turn the box 'Off'. Battery charging etc. continues.

Or it will start the next 'Operation':

- If any settings have changed then it repeats the start up sequence. Once you are sure that the sequence is correct, pressing **the 'O' button again will save the changes** into the Camera and turn the box off.
- At the 'Off' stage, holding the 'O' button down until the Power Red-LED stops flashing and stays lit will switch to a '**test-mode'**. In this mode the Camera LED will show what is going on (see Protocols below), and the 'T' button will be active.

Button 'T': Mimics the Wildlife Computers TDR indicating that the Camera is within the programmed depth range. Press and hold to remain 'at depth', release to go 'shallow' (or 'too deep').

Button 'S': is the 'Shutter' button, which will be needed to make particular choices in the set-up menus. It will also take pictures while the Orange box is connected to the Camera.

Button 'M': is the 'Menu' button, which starts the menu mode and will be needed to make particular choices in the set-up menus.

The 'Direction' buttons, 'Up'-'Right'-'Down'-'Left', will move you through the menus in the appropriate directions.

Power Red-LED:

Lit when power is 'On' at the 12 Volt Socket, or flashes when activity takes place.

Battery Red-LED:

Indicates that the battery is charging.

Battery Green-LED:

Indicates that the battery is now fully charged.

11. The available picture taking protocols and the possible parameters that can be set for each protocol are described in the Protocols section. When you are happy with the set-up and it has been saved into the camera, you should turn the Orange Box "Off" with the 'O' button. The display on the box will get quite warm after prolonged use and may even switch itself off if it gets too hot. The battery charging circuitry will continue to work, even after the box has been switched off, as long as power is connected to the box.
12. Once the battery has been fully charged and you have no more changes to make to the set-up, unplug the power from the Orange Box.
13. Using a Wildlife Computers Blue Box, program the TDR in the usual way via the comm port. You can use the same power supply for the Blue Box that was used for the Orange Box - the plugs and voltages are the same.
14. In addition to the standard Mk9 TDR settings (see the Wildlife Computers Instruction Guide) there are some special **Digital Output Channel Control** settings available from the Mk9Host **Maintenance** menu bar which act as **Venus Camera Controls**:
    a. The "More than" and Less than" boxes set "Shallow" and "Deep" depth limits. These values set the limits of the range of depths where the Camera will take pictures. The TDR tells the Camera whether it is "in range" or not and there will be a record of that message in the TDR record. The protocol set in the Camera will determine if a picture is actually taken or not.
    b. Active Hours selection. If the TDR is between the set depth limits at the start of an "inactive" hour, then it will send a message to the Camera to say that it is now out of range.

15. Deploy the Mk9 TDR as usual and insert a lightly greased white comm port plug.
16. Attach the short handle to the deployment plug. (Take care when attaching the handle to the plug not to cross the threads).
17. Make sure that a blank formatted SmartMedia card is inserted, then use the short handle to insert the deployment plug. Make sure the plug is fully seated in the socket. The camera will now follow a special deployment sequence. The sequence lets you know, via the Camera LED, that everything is working ok.
    a. The LED lights for 5 seconds waiting to see that the deployment plug is firmly attached.
    b. The LED flashes for 30 seconds while the normal power-on warm-up checks are carried out.
    c. The LED stays on for 3 seconds, flashes twice, then 2 seconds later the Camera will take a single “clapperboard” shot. A clapperboard showing details of the deployment, the animal, the place etc may be used for identifying the recorded pictures. It is also useful to include a real clock showing the current time just in case the Camera’s internal clock has lost its settings since last talking to the Orange Box.
    d. For the next minute, the LED will flash twice every 3 seconds. This will let you know that the deployment plug has not been disturbed during the final closure of the data port cover. Also, during this time, the TDR depth sensor behaviour can be checked. Finger pressure on the sensor will emulate the water pressure at depth. Whenever the depth is “in range” the LED will be lit. If this test doesn’t work then check that the TDR has actually been deployed! Of course, if you are in an “inactive hour” then the test will not work anyway.
    e. At the end of this sequence, the LED will not come on again until the next deployment.
18. **Make sure that the inside metal surface of the data port opening is clean and free of all debris - however small!**
19. **Make sure that the mating metal surface of the data port cover and the ‘O’-ring are clean and free of all debris - however small!**
20. If needed, reapply a very thin layer of grease over the mating surfaces.
21. Insert the data port cover. Air pressure inside the port should act against you and push the cover out a bit. This is a good sign and indicates that the ‘O’-ring is working.
22. Insert the two cover screws until they are just touching the cover - **do not tighten yet!**
23. Now press down on the cover with your fingers and hold it down while you tighten the two retaining screws.

    The UTPR camera is now ready for deployment.

Recovering the Pictures and Data after Deployment

1. If the camera has been deployed:
    a. Thoroughly **dry the outside of the camera** with a paper towel
    b. Use paper towel to mop up any dribbles of water that may be trapped around the edge of the data port as the cover is removed
    c. Keep the camera on its side while removing the data port cover to stop any trapped water running back into the data port
2. Remove the data port cover:
    a. Remove the 2 retaining screws **put them somewhere safe**
    b. Attach the long handle to the cover
    c. Remove with a straight pull and slight rotation

3. Remove the Wildlife Computers comm port plug:
    a. See Wildlife Computers Mk9 Instruction Guide
    b. Remove the white plug
    c. Keep the plug clean and **put it somewhere safe**
    d. Blow out any water
4. Remove the deployment plug if necessary:
    a. Attach the short handle to the plug
    b. Remove with a straight pull and very small gentle rocking motions
    c. Keep the plug clean and **put it somewhere safe**
5. Using a Wildlife Computers Blue Box, save the deployment data and suspend the TDR in the usual way via the comm port. You can use the same power supply for the Blue Box that was used for the Orange Box - the plugs and voltages are the same.

The recorded pictures can be examined on the Orange Box now if you wish. Connect the Orange Box in the usual way, then after the start up sequence has finished, press the 'A' button to change the activity mode to Replay. Use the direction keys to move through the picture thumbnails, and press the Shutter button to show a particular picture full screen. To return to the thumbnail view, press and hold the menu button.

The pictures can be examined better on a PC. To do this remove the SmartMedia card and copy the images to the PC hard disk. We supply a Floppy Disk Adapter for reading the SmartMedia. However, we strongly recommend that you use a PC Card Adapter or USB Reader.

IMPORTANT: To preserve the TIMESTAMP of each file you must copy the complete 'Dcmv' or 'Dcim\100sharp' folder rather than copying image by image.

After copying the folder, rename it immediately with a name that identifies the deployment. The original folder name and image numbers will be repeated the next time that the card is used. There is a danger therefore of overwriting an old image with a new one having the same folder and file name.

The "Flexible Renamer" software which is included on the CD gives the best security.

Once you are sure that you have successfully copied all the images to you computer, the SmartMedia can be wiped and used again. You will find it quicker to reformat the card rather than delete all the images.

A Note about the Colour Balance of the Venus Pictures

The colours reproduced in the pictures recorded by the Venus Camera may look a bit strange. In order to operate with near infra-red light, the infra-red cut filter that is normally placed in front of a CCD imaging chip has been removed. This makes the CCD sensitive to IR wavelengths, but it also results in a rather strange colour balance for the rest of the visible spectrum. The balance has been adjusted to the "best fit" and you may do further manipulation through post-processing of the images.

Operating Modes

The UTPR system operates in either Movie mode or Still mode. And, for each of these, there is in turn a Record mode and a Playback mode. The 'Activity' button on the Orange Box allows you to select them.

A single press will toggle between Record and Playback. However, the system will always power-up in Record mode.

A press and hold of the 'A' button will switch between Movie and Still. Once the Movie/Still selection has been made, the system will remain in that mode until changed again: even after being turned off.

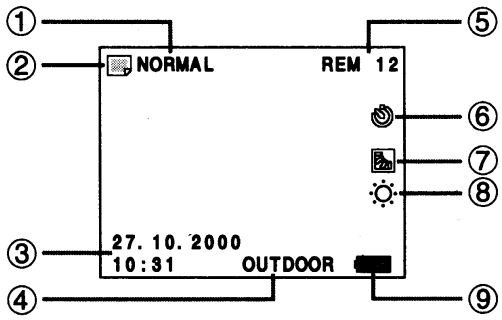
Each of these four modes has its own set of menu screens. Pressing the Menu 'M' button accesses the menus. Most of the options in the menus are self-explanatory and a map of the menu options is shown in the Menu Structures section. Those menu options requiring further explanation are described in the Display Screen Indicators section.

The Menu Structures

Movie Record		
	REC MODE	LP → NORMAL → FINE → S-FINE → 1/4VGA
	DISPLAY	ON → OFF
	BLC	ON → OFF
	BACKLIGHT	NORMAL → P-SAVE
	W/B	AUTO → OUTDOOR → INDOOR
	TIME LAPSE	OFF → X10 → X40 → X100
	BEEP	ON → OFF
	CLOCK SET	12H / 24H
Movie Playback		
	C-PLAY	ON → OFF → REPEAT
	SLOW PLAY	ON → OFF
	DISPLAY	ON → OFF
	BACKLIGHT	NORMAL → P-SAVE
	EDIT	DELETE / DIVIDE / DELETE ALL
	PROTECT	
	FORMAT	
	BEEP	ON → OFF
Still Record		
	REC MODE	NORMAL → FINE
	DISPLAY	ON → OFF
	BLC	ON → OFF
	BACKLIGHT	NORMAL → P-SAVE
	SELF-TIMER	ON → OFF
	W/B	AUTO → OUTDOOR → INDOOR
	BEEP	ON → OFF
	CLOCK SET	12H / 24H
Still Playback		
	AUTO PLAY	
	DISPLAY	ON → OFF
	BACKLIGHT	NORMAL → P-SAVE
	DELETE	
	DELETE ALL	
	PROTECT	
	FORMAT	
	BEEP	ON → OFF

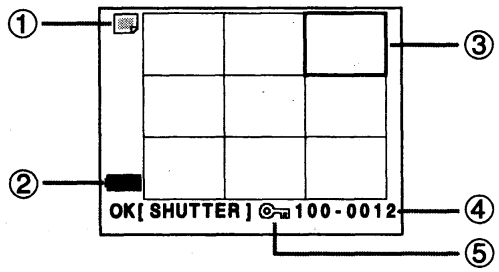
Display Screen Indicators

Still Recording Mode



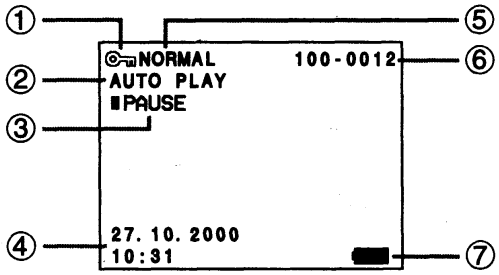
1. Still mode resolution setting.
   NORMAL → FINE
2. STILL mode indicator.
3. Date and Time indicators:
   DD.MM.YYYY
   HH:MM
4. Protocol (W/B) indicator:
   AUTO → INDOOR → OUTDOOR
5. Approximately, the Remaining number of recordable images at this resolution.
6. Self-Timer indicator. PIX-RATE and OFF-DELAY parameters can be checked and set when this is on.
7. BLC indicator. Appears when Bright Light Conditions are expected and the illuminator lamp has been switched off.
8. Light level indicator.
   Unused by the Venus UTPR.
9. Battery power indicator.
   Unused by the Venus UTPR.

Still Playback Index



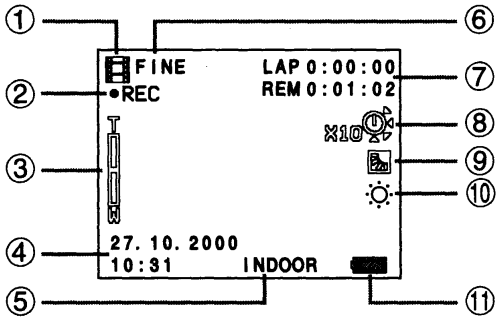
1. STILL mode indicator.
2. Battery power indicator.
   Unused by the Venus UTPR.
3. Selected frame. Use the direction buttons to change the selection.
4. The serial number of the still image.
5. Protect indicator appears if the image is protected.

Still Playback Mode



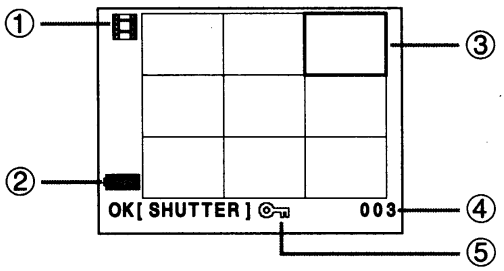
1. Protect indicator appears if the image is protected.
2. Auto Play mode indicator.
3. Pause auto play indicator.
4. Date and Time indicators:
   DD.MM.YYYY
   HH:MM
5. Image resolution setting.
6. The serial number of the still image.
7. Battery power indicator.
   Unused by the Venus UTPR.

Movie Recording Mode



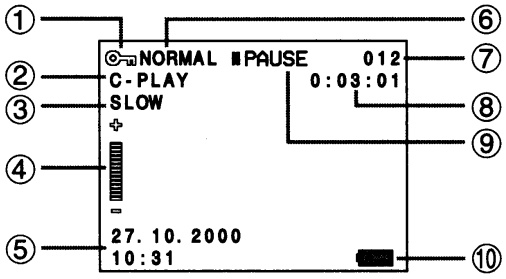
1. MOVIE mode indicator.
2. Recording/Pause indicator.
3. Zoom indicator. Unused in Venus UTPR deployments.
4. Date and Time indicators:
   DD.MM.YYYY
   HH:MM
5. Protocol (W/B) indicator:
   AUTO → INDOOR → OUTDOOR
6. Movie mode resolution setting.
   LP → NORMAL → FINE → S-FINE → 1/4VGA
7. LAP: time since recording started.
   REM: remaining record time (approx).
8. Time-lapse mode indicator.
9. BLC indicator. Appears when Bright Light Conditions are expected and the illuminator lamp has been switched off.
10. Light level indicator.
    Unused by the Venus UTPR.
11. Battery power indicator.
    Unused by the Venus UTPR.

Movie Playback Index



1. MOVIE mode indicator.
2. Battery power indicator.
   Unused by the Venus UTPR.
3. Selected movie. Use the direction buttons to change the selection.
4. The serial number of the movie.
5. Protect indicator appears if the movie is protected.

Movie Playback Mode



1. Protect indicator appears if the movie is protected.
2. Continuous Play mode indicator.
3. Slow play indicator.
4. Unused by the Venus UTPR.
5. Date and Time indicators:
   DD.MM.YYYY
   HH:MM
6. Movie resolution setting.
7. The serial number of the movie.
8. Elapsed play time.
9. Pause indicator.
10. Battery power indicator.
    Unused by the Venus UTPR.

The Illumination Lamp and Recording in Bright Light Conditions (BLC)

The Illumination Lamp always strobes in 1/125 second synchronous pulses unless disabled by BLC.

When the ambient lighting conditions are likely to be bright, you can select BLC mode which will disable the illumination lamp.

If the conditions are very bright then the movie duration may be half that set by OFF-DELAY for the OUTDOOR protocol.

Dividing Movies

Movies can be divided into sub-movies in the camera.

1. Select EDIT → DIVIDE → then use the direction buttons to select the movie to DIVIDE.
2. Press the SHUTTER button to start playing back the movie, and press it again at the scene to make the cut.
3. The DIVIDE submenu of six possible cutting points will be displayed.
4. Move to the cutting point of choice and press the SHUTTER button.

Auto Play

Once AUTO PLAY has been selected for still image playback, the SHUTTER button will start and stop the slide-show. To exit from AUTO PLAY press any direction button.

Time Lapse Movie Recording

The time-lapse can be used for observing very slowly changing scenes from a fixed position. It is unlikely to be better than taking a long sequence of stills. However, if you are running into storage problems before battery problems, then this mode may be of use.

Backlight

The BACKLIGHT options of NORMAL and P-SAVE are unused by the Venus UTPR.

Clock Reset at Power-Up

The clock in the Camera may not retain the time settings if disconnected from a power source for more than 30 minutes. (If the Deployment Plug is in place, the main batteries supply power while they can).

If the clock loses its settings then the CLOCK menu will be displayed at the end of the first start-up sequence. The clock must be set before the Camera will record any pictures. If the menu seems "stuck" try changing the day back and forth. After EXITing with the 'M' button, always press the 'I' button to re-initialise.

More on the 'O' and 'T' Buttons

The 'O' button has three inter-related functions:

- Turning the system 'Off',
- Saying 'OK' to any settings changes that may have been made,
- 'Operating' the Test Mode.

The system won't let you switch of straight away if it thinks you may have changed some settings. It will always replay the start-up sequence to show the current settings. Only after you have confirmed the changes by pressing the 'O' button again will it turn off.

If you 'press-and-let-go' at this 'Off' stage (either as you press 'O' the first time if no settings have been changed, or as you press it the second time if changes have been made) the LED flashes and the system turns off. But if you 'press-and-hold' the 'O' button at this point then you will start operating the Test Mode, and you can let go of the button once the Camera LED is on steady. The Camera LED turns off after the first 5 seconds of the Test Mode.

The 'T' button will only work once you are in Test Mode. It then mimics the 'in-depth-range' signal from the TDR and you get feedback from the Camera LED and the Orange Box screen to show

how the system will work with your current settings during a deployment. The details of the camera LED feedback are described on the next page. **Please Note** that the 'INDOOR' or 'OUTDOOR' names will **not** be displayed while operating in Test Mode – but the camera's operation will follow the selected protocol.

Venus Picture Taking Protocols

In addition to these basic operating modes, the user can select one of three picture taking protocols. And within these protocols, some of the timing parameters can be altered for each deployment. The protocol names (AUTO – INDOOR – OUTDOOR) are taken from the internal "White Balance" options, which are not used during deployment. They simply provide a convenient built in menu structure.

Regardless of the protocol being followed, these two conditions will always apply:

1: The unit will only POWER UP if the animal remains deeper than the "shallow limit" for more than 5 seconds - this is considered to be the start of a dive.

2: There will always be a warm up delay of 40 seconds after power-up before still pictures start to be taken, and up to 45 seconds before movies.

The protocols available are:

1: AUTO (default - no indication on the Orange Box display)
   (a) A new STILLS sequence, or MOVIE, will only start after the animal has been deeper than the "shallow limit" for more than 5 seconds - i.e. it has started diving.
   (b) The STILLS sequence or MOVIE continues while the animal stays below the "shallow limit".
   (c) The sequence or movie will stop once the animal moves above the "shallow limit".
   (d) After a dive, the unit remains on STAND-BY for OFF-DELAY minutes. During STAND-BY new pictures are taken immediately after the 5 second "is-this-a-dive" check - there is no 40/45 second warm up. If no dive occurs during STAND-BY, the unit will POWER DOWN.

2: INDOOR
   (a) This is the same as AUTO, but the Lamp stays on longer at each strobe pulse. This gives a longer effective exposure of about $1/60^{th}$ of a second as opposed to $1/125^{th}$ in AUTO.

3: OUTDOOR
   (a) Once started, the sequence of STILLS, or the MOVIE, will continue whatever the depth.
   (b) The sequence or movie stops recording after OFF-DELAY minutes.
   (c) The unit will then POWER DOWN immediately and stay switched OFF for 15 minutes.
   (d) For the special case when OFF-DELAY is zero picture taking continues until battery power or memory is exhausted. A movie will be broken into 15 minute segments with a 6 second gap between them. The camera LED will do 2 double flashes during the gap.

Notes:

1: In a sequence of STILLS, a picture is taken every PIX-RATE seconds.

2: Going deeper than the "deep limit" will stop the recording in AUTO or INDOOR protocols.

3: The ACTIVE HOURS settings over-ride these actions like this:
   (a) At the start of an INACTIVE HOUR, the unit considers the animal to have moved into "shallow" waters and will behave accordingly.
   (b) At the start of an ACTIVE HOUR, the unit considers the animal to have moved below the "shallow" limit and will behave accordingly.

4: In very bright conditions, an OUTDOOR MOVIE's duration will be half the OFF-DELAY time.

Battery Drain and STAND-BY

The amount of STAND-BY time seriously affects the power drain on the batteries. During STAND-BY the power drain is almost the same as when pictures are being taken - but without pictures! The advantage of STAND-BY is no 40/45 second delay at the start of the second and subsequent dives.

Setting Venus Picture Taking Protocols and Parameters

The bottom line of the Orange Box's display indicates whether the unit will follow the INDOOR or the OUTDOOR protocol. If there is no indication then it follows the AUTO protocol.

To change to another protocol:

1: From either the STILLS or MOVIE "record menu" use the UP or DOWN keys to highlight the "W/B" line. The current protocol is also indicated on that line.

2: To start making changes, press the RIGHT key once.

3: The "White Balance" screen will be shown and the protocol can be selected with the LEFT or RIGHT keys. The colours on the screen will change with the protocol setting, but this will not be reflected in recorded pictures.

The PIX-RATE and the OFF-DELAY times can be set and checked when the SELF-TIMER is ON. This can only be done from the STILLS "record menu" - but the settings will also apply to MOVIES.

1: From the STILLS "record menu", turn the SELF-TIMER to ON, then exit the menu.

2: The small stopwatch symbol should now show on the right hand side of the display.

3: Press the LEFT key to set and check the PIX-RATE setting. Each flash of the Orange Box Power Red-LED indicates a 3 second interval: i.e. 2 flashes means 1 picture every 6 seconds, 3 flashes for 1 every 9 seconds, 4 for 1 every 12 seconds, etc. To change the PIX-RATE, first check the value with the LEFT key then increase or decrease it with the UP and DOWN keys.

4: Press the RIGHT key to set and check the OFF-DELAY setting. Each flash of the Camera LED indicates a 1 minute interval: i.e. 2 flashes means an OFF-DELAY of 2 minutes, 3 flashes for 3 minutes, etc. An OFF-DELAY of zero minutes is indicated by a quick double-flash. To change the OFF-DELAY, first check the value with the RIGHT key then increase or decrease it with the UP and DOWN keys.

5: Once you are happy with the settings, turn the SELF-TIMER to OFF from the STILLS "record menu", and then exit the menu. The stopwatch symbol should disappear.

The PIX-RATE and the OFF-DELAY times can also be checked (but not set) immediately after the initial start-up sequence. Press the LEFT key to set the PIX-RATE setting, the RIGHT key to check the OFF-DELAY setting

Test Mode Camera LED Signals

The system goes into a "test-mode" when the Operation 'O' button is held down after settings have been saved. (See page 10 and the Button 'O' description on page 4). In this mode, the Camera LED indicates which protocol stage the Camera has reached:

1: At the start of the test mode the Camera LED always stays lit for 5 seconds.

2: The 'T' button mimics the TDR "in depth range" signal. The Camera LED will flash once a second while it's held down, except in the OUTDOOR 15 minute OFF period.

3: Holding the 'T' button continuously for 5 seconds (5 flashes) simulates the start of a dive.

4: During STAND-BY the Camera LED will flash quickly (twice a second).

5: During the INDOOR and OUTDOOR 15 minute OFF times, the LED will flash once a minute.

6: The Camera LED is off if the system is powered down, showing minimum current consumption.

To end the "test-mode", disconnect the power plug or press the 'I' button to re-initiate the system.

Picture Recording Resolution Modes (REC MODE)

Still Image Resolution Modes

Mode	*Description*	*Number of Images*	*Pixels*
NORMAL:	Recording with standard picture quality, high compression.	1152	640 x 480
FINE:	Recording with higher picture quality than NORMAL mode - less compression but half the number of images.	576	640 x 480

These figures are approximate for a 64Mbyte card and depend on the complexity of the image being compressed.

Movie Resolution Modes

Mode	*Description*	*Record Time*	*Pixels*	*Frame rate (fps)*
1/4VGA	Recording with the best quality of all, but at a low frame rate. Good for slowly changing scenes.	20 min	320 x 240	2 to 5
S-FINE	Recording at a lower resolution than 1/4VGA but at a much higher frame rate. Better quality than FINE. Good for faster moving scenes.	20 min	160 x 120	5 to 15
FINE:	Recording with more compression than S-FINE mode, but better picture quality than NORMAL mode.	40 min		5 to 12
NORMAL:	Recording with standard picture quality, high compression.	2 hours		5 to 10
LP	Recording with the lowest picture quality, highest compression, very low frame rate.	4.5 hours		1 to 2

These figures are approximate for a 64Mbyte card and depend on the complexity of the image being compressed. The frame rate achieved also depends on the image complexity.

Formatting a SmartMedia Card

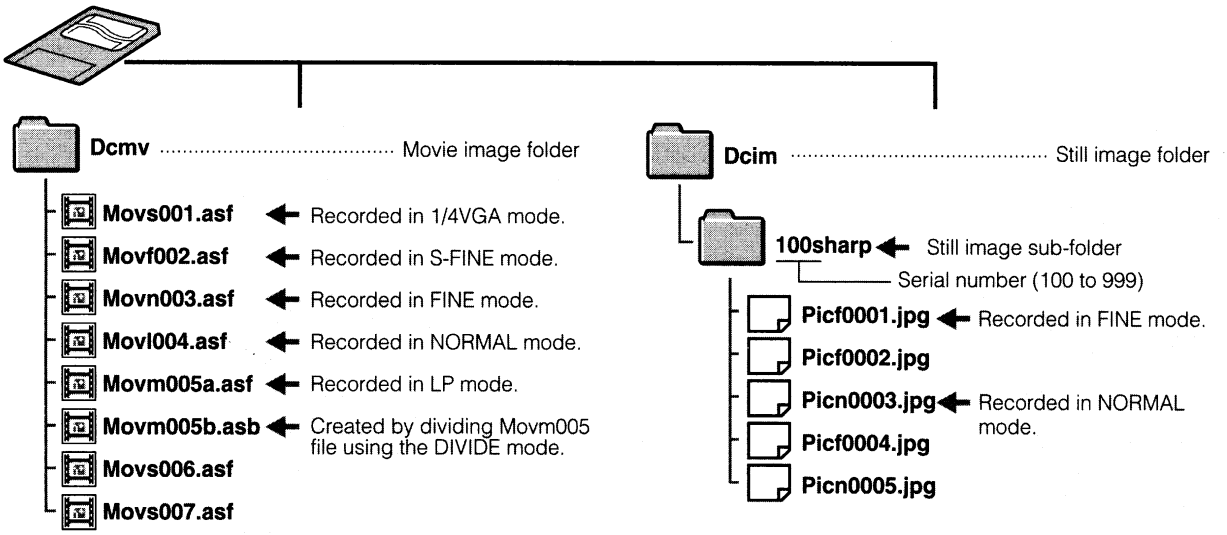
Reformat the SmartMedia card when:

- “READ ERROR” often appears
- “NOT INITIALIZED” appears
- “FILE NO. FULL” appears and you cannot record images.

WARNINGS:

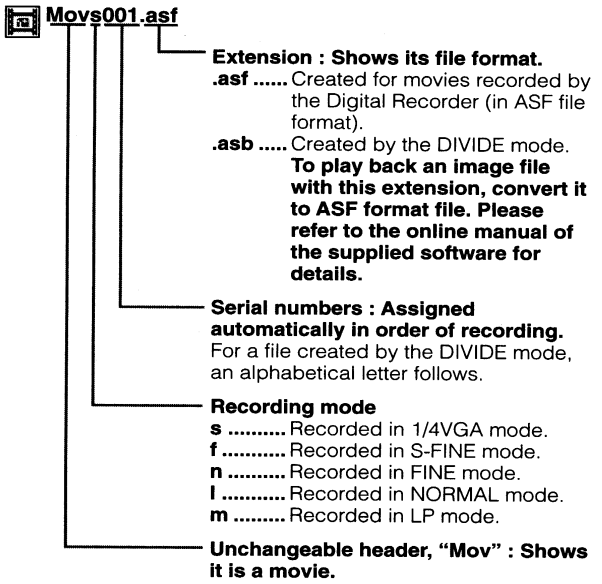
- Formatting a SmartMedia card deletes all images, even if they have been protected.
- Always format in the Venus Camera, other formatting may not be recognised.
- Do not disconnect the power supply to the Orange Box while formatting a card.
- You cannot format a card which is physically damaged. The warning indicator “CARD ERROR” appears.

Image File Names and Directories on the SmartMedia Card

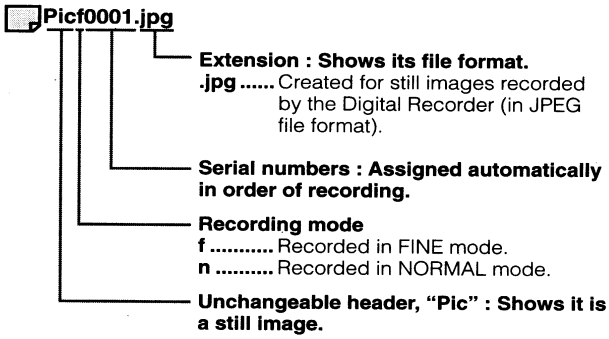


A file name is made up of the following parts.

Movie image file



Still image file



Note:

- Even if you delete one image (file) or more, the other files' serial numbers do not change.

Warning Indicators

CLOCK SET	The built in clock needs re-setting.
POWER OFF	The batteries are almost dead.
NO CARD	The SmartMedia card is not loaded properly. Make sure that the correct side of the card is facing up and insert the correct end of the card into the slot.
NO FILE	The SmartMedia card has no images recorded in the format the Venus UTPR can recognise.
CARD FULL	The SmartMedia card's capacity is insufficient. Delete unnecessary images from the card or replace the card with a new one.
FILE NO. FULL	The Venus UTPR has used up all the assignable image numbers for the file names. Delete unnecessary images from the card or replace the card with a new one.
CARD ERROR	The image files on the SmartMedia card are corrupted or are recorded in a format which is not compatible with the Venus UTPR. Copy the necessary images onto your computer's hard disk and reformat the SmartMedia card.
NOT INITIALIZED	The SmartMedia card is not formatted.
PROTECTED CARD	Not applicable to the Venus UTPR.
PROTECTED	You are trying to delete a protected image. Unprotect it before deletion.
READ ERROR	Cannot read the images on the SmartMedia card. The Venus UTPR can't playback images recorded by other cameras. Make backup copies of images on other media. Then reformat the SmartMedia card.
WRITE ERROR	Cannot record the images onto the SmartMedia card. Check that the card is loaded properly.
AUTO POWER OFF	Not applicable to the Venus UTPR.
BUSY	Now processing instructions. Wait until this indicator is replaced.
TEMP ERROR	The Venus UTPR is too hot. Turn off the power and allow to cool down.
CAN'T REC	Cannot record the images in the time-lapse movie mode because the recording time is too short. For "x100" mode, the recording time should be more than 10 sec.
CAN'T DIVIDE	Cannot divide the movie.