

## HD-SDI 1080P flicker-free conversion for the Aaton Penelope VHR (ver.2)

### Specifications:

HD active picture elements: 1920 (H) x 1080 (V)

Two HD SDI video outputs (BNC connectors).

HD video output: 3G-SDI (SMPTE424M Compliant) 1080p60/59.94/50, 1080i60/59.94/50

HD-SDI (SMPTE292M Compliant) 1080P30/25, 720P60/59.94/50

HD video image is controlled by HD OSD functions and VHR keys: <vid>, <up>, <down>, <left>, <right>, <sto>, <exit>.

Minimum illumination: 0.5 Lux at F1.2, AGC on

White balance: AWB, manual : R/G and B/G

Shutter speed selectable

Gamma: selectable

Luminance selectable

Sharpness selectable

Line generator: both horizontal and vertical with all available colors

Shadow mask on/off

Circle maker with all available colors

Patterns to calibrate an HD monitor

VHR power consumption: 4.5W

This HD VHR may become warm, so please not use it under hot direct sunlight or in high temperature areas. Do not wrap the unit in any material during power is on. This will cause the internal temperature of the unit to increase.

By pressing the VHR "ON/OFF" key HD video will be on after 5 second.

It is recommended to turn on VHR when the camera lens is covered with the front cover (front cup) and no light is exposing the HD image sensor. This procedure calibrates the black level of the image frame and adjusts the brightness of excited pixels.

To display the VHR HD OSD Menu on the HD video monitor screen, press the <vid> and <sto> keys. To exit the VHR HD OSD Menu press the <vid> and <sto> keys again.

Image parameters are set using keys: <up>, <down>, <left>, <right>, <exit>.



VHR HD OSD Menu consists of 6 pages. By pressing the <sto> key allows to quickly go from one page to next.

## **Page 1**

### 1) ALC

Selects enable / disable for auto exposing and auto gain (AGC) operation from below two selections.

#### a) ON

The auto exposing and auto gain (AGC) operation.

The brightness of image will be maintaining to keep target brightness of image (with LUMINANCE setting) with auto exposing and auto gain functions.

#### b) OFF

The manual exposing and manual gain operation

“AGC” and “AEE” switch to “OFF (FIXED)” then adjusts with “GAIN” and “SHUTTER”.

### 2) LUMINANCE

Sets the target brightness for auto exposing and auto gain operation.

The brightness of image will be maintaining with auto exposing and/or auto gain functions. Setting range: 0 (Dark) to 255 (Bright)

### 3) AGC

Selects gain operation from below to gain operations. This setting is valid when selecting “ON” at “ALC”.

#### a) AUTO

The brightness of image will be maintaining to keep target brightness of image (with LUMINANCE setting) with auto gain function.

#### b) FIXED

The fixed gain operation

The fixed gain is adjustable with “GAIN”.

### 4) AEE

Selects exposing operation from below two exposing operations. The setting is valid when selecting “ON” at “ALC”.

#### a) AUTO

The brightness of image will be maintaining to keep target brightness of image (with LUMINANCE setting) with auto exposing function.

#### b) FIXED

The fixed exposure time operation

The fixed exposure time is adjustable with “SHUTTER”.

### 5) GAIN

Sets the fixed gain.

This fixed gain setting is valid when selecting “OFF” at “ALC”, or “FIXED” at “AGC”. Setting range: 0 (0.00 dB) to 150 (45.0 dB)

## 6) SHUTTER/FPS

Sets the fixed exposure time.

This fixed exposure time setting is valid when selecting "OFF" at "ALC", or "FIXED" at "AEE".

For flicker-free video image set video shutter = fps of the camera. Example: video shutter = 1/25s means that video image will be flicker-free for the camera speed 25 fps. Auto flicker-free mode set by short keys <vid>and <exit> will work for any camera speeds only if "AEE" is set to "FIXED" and SHUTTER is set -067, 1/23.9s and HD video format is set to 1080p50 (OSD Menu - Page 5).

## 7) GAMMA

Sets the Gamma.

Setting selection: MANUAL, 0.3, 0.45, 0.50, 0.60, 0.70, 0.80, 0.90 / 1.00

## **Page 2**

### 1) WB MODE

Selects the white balance mode from below two modes.

#### a) AUTO

The auto white balance operation.

#### b) MANUAL

The manual white balance operation with adjustable "R GAIN" and "B GAIN".

### 2) R GAIN

Sets the R gain for manual white balance.

This setting is valid when selecting "MANUAL" at "WB MODE". Setting range: 0 to 1,023

### 3) B GAIN

Sets the B gain for manual white balance.

This setting is valid when selecting "MANUAL" at "WB MODE". Setting range: 0 to 1,023

### 4) SHARPNESS

Sets the sharpness (Edge enhancement) of image.

#### a) H

Sets the horizontal sharpness.

Setting range: 00 (Soft) to 15 (Strong)

#### b) V

Sets the vertical sharpness.

Setting range: 00 (Soft) to 15 (Strong)

### 5) CORING

The noise level also emphasizes when using sharpness function.

The SN ratio deteriorate for other than edge parts is prevented by cutting signal level that smaller than this setting. The image becomes soft image if this setting sets too large. Setting range: 00 to 63

## **Page 3**

### 1) GRAPHICS

Selects enable or disable for line makers, shadow mask and circle marker displaying. This setting is synchronizing with “GRAPHICS” on Page 4.

#### a) ON

The line markers, shadow mask and circle marker can be display.

Selects enable or disable “line makers” display at “LINE”

Selects enable or disable “shadow mask” display at “SHADOW” on page 4. Selects enable or disable “circle marker” display at “CIRCLE” on page 4.

#### b) OFF

The line markers, shadow mask and circle marker do not display.

### 2) LINE

Selects enable or disable for Line markers display. This setting is valid when selecting “ON” at “GRAPHICS”.

#### a) ON

The line makers are displaying.

Sets the color, size (thickness) and position for individual line.

The line maker does not display if size (thickness) of line is “0” or position of line is “0000” even selecting “ON” at “LINE”.

#### b) OFF

The line markers do not display.

### 3) LINE1 (Horizontal line 1 maker and vertical line 1 maker settings)

Sets the color, size (thickness) and position for horizontal line marker 1 and vertical line marker 1.

#### a) H POS

Sets the position for horizontal line marker 1. Setting range: 0 (Top) to 1,080 (Bottom)

#### b) H SIZE

Sets the size (thickness) for horizontal line marker 1.

Setting range: 0 (0 line, horizontal line marker 1 does not display) to 1,080 (1,080 lines)

#### c) H COLOR

Sets the color for horizontal line marker 1.

Setting selection: BLACK / WHITE / RED / GREEN / BLUE / CYAN / MAGENTA / YELLOW / USER0 / USER1 / USER2 / USER3 / USER4 / USER5 / USER6 / USER7

#### d) V POS

Sets the position for vertical line marker 1. Setting range: 0 (Left end) to 1,920 (Right end)

#### e) V SIZE

Sets the size (thickness) for vertical line marker 1.

Setting range: 0 (0 pixel, vertical line marker 1 does not display) to 1,920 (1,920 pixels)

#### f) V COLOR

Sets the color for vertical line marker 1.

Setting selection: BLACK / WHITE / RED / GREEN / BLUE / CYAN / MAGENTA / YELLOW / USER0 / USER1 / USER2 / USER3 / USER4 / USER5 / USER6 / USER7

4) LINE2 (Horizontal line 2 maker and vertical line 2 maker settings).

Sets the color, size (thickness) and position for horizontal line marker 2 and vertical line marker 2.

a) H POS

Sets the position for horizontal line marker 2. Setting range: 0 (Top) to 1,080 (Bottom)

b) H SIZE

Sets the size (thickness) for horizontal line marker 2.

Setting range: 0 (0 line, horizontal line marker 2 does not display) to 1,080 (1,080 lines)

c) H COLOR

Sets the color for horizontal line 2.

Setting selection: BLACK / WHITE / RED / GREEN / BLUE / CYAN / MAGENTA / YELLOW / USER0 / USER1 / USER2 / USER3 / USER4 / USER5 / USER6 / USER7

d) V POS

Sets the position for vertical line marker 2. Setting range: 0 (Left end) to 1,920 (Right end)

e) V SIZE

Sets the size (thickness) for vertical line marker 2

Setting range: 0 (0 pixel, vertical line marker 2 does not display) to 1,920 (1,920 pixels)

F) V COLOR

Sets the color for vertical line 2.

It is necessary to set USER0 to USER7 colors via UART communication.

Setting selection: BLACK / WHITE / RED / GREEN / BLUE / CYAN / MAGENTA / YELLOW / USER0 / USER1 / USER2 / USER3 / USER4 / USER5 / USER6 / USER7

## **Page 4**

1) GRAPHICS

Selects enable or disable for line makers, shadow mask and circle marker displaying. This setting is synchronizing with "GRAPHICS" on Page 3.

a) ON

The line markers, shadow mask and circle marker can be display. Selects enable or disable "line makers" display at "LINE" on page 3. Selects enable or disable "shadow mask" display at "SHADOW". Selects enable or disable "circle marker" display at "CIRCLE".

b) OFF

The line markers, shadow mask and circle marker do not display.

2) SHADOW

Selects enable or disable for Shadow mask display. This setting is valid when selecting "ON" at "GRAPHICS".

a) ON

The shadow mask is displaying.

Sets the grade and position for shadow mask.

b) OFF

The shadow mask does not display.

## 2-1) GRADE

Sets the grade of shadow mask.

Setting range: 0 (100% transparent, no shadow mask and image is visible) to 255 (Back shadow mask and image is invisible)

## 2-2) SHADOW H T

Sets the height of shadow mask from top of image. Setting range: 0 (Top) to 1,079 (Bottom)

## 2-3) SHADOW H B

Sets the height of shadow mask from bottom of image. Setting range: 0 (Top) to 1,080 (Bottom)

## 2-4) SHADOW V L

Sets the width of shadow mask from left of image. Setting range: 0 (Left) to 1,919 (Right)

## 2-5) SHADOW V R

Sets the width of shadow mask from right of image. Setting range: 0 (Left) to 1,920 (Right)

## 3) CIRCLE

Selects enable or disable for circle maker display. This setting is valid when selecting "ON" at "GRAPHICS".

### a) ON

The circle maker is displaying.

Sets the radius, line size (thickness), center position and color for circle maker.

The circle marker does not display if size (thickness) of circle is "0" even selecting "ON" at "CIRCLE".

### b) OFF

The circle maker does not display.

## 3-1) RADIUS

Sets the radius for circle marker. Setting range: 000 (Filled circle) to 960

## 3-2) SIZE

Sets the size (thickness) for circle marker.

Setting range: 0 (0, circle does not display) to 480

## 3-3) H POS

Sets the horizontal center position for circle marker. Setting range: 000 (Left end) to 1,920 (Right end)

## 3-4) V POS

Sets the vertical center position for circle marker. Setting range: 000 (Top) to 1,080 (Bottom)

## 3-5) COLOR

Sets the color for circle.

Setting selection: BLACK / WHITE / RED / GREEN / BLUE / CYAN / MAGENTA / YELLOW / USER0 / USER1 / USER2 / USER3 / USER4 / USER5 / USER6 / USER7

## **Page 5**

### 1) RES / FPS

Sets the video format and frame rate for video output from below eleven output formats. Please select the video output format and frame rate to match specifications of monitor or capture devices. Setting selection: 1080p60 / 1080p59.94 / 1080p50 / 1080p30 / 1080p25 / 1080i60 / 1080i59.94 / 1080i50 / 720p60 / 720p59.94 / 720p50

### 2) OSD SIZE

Sets the character size of OSD.

#### a) LARGE

OSD display with large size of character.

#### b) SMALL

OSD display with small size of character.

### 3) PROFILE

Preset data (from PRESET0 to PRESET7) can be apply to VHR.

### 4) PATTERNS

Selects the output signal (video and test pattern) from below four output signals.

#### a) OFF

The video is output from VHR.

#### b) GRAY

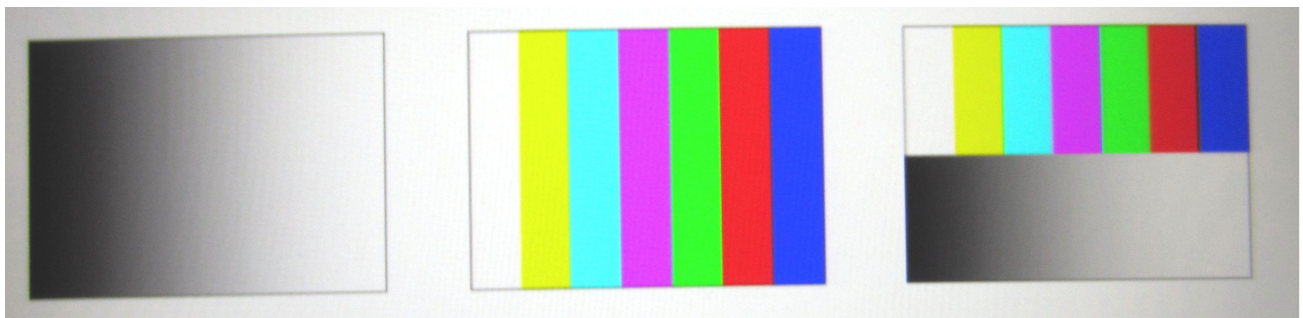
The gray scale test pattern is output from VHR.

#### c) COLOR

The color test pattern is output from VHR.

#### d) GRAY+COLOR

The color pattern (Top) + gray scale (Bottom) test pattern is output from VHR.



### 5) IMAGE OUTPUT

Selects the flip image setting for video BNC output from below four flip modes. This setting does not apply to test pattern outputs.

#### a) STANDARD

The normal image (no-flip).

#### b) INVERSION

The horizontal flipped image.

c) V INVERSION

The vertical flipped image.

d) HV INVERSION

The horizontal and vertical flip (180-degree rotate) image.

6) OUTPUT RANGE

Some monitor is only displaying "16 to 235" gradation image through input even VHR outputs "0 to 255" gradation image.

When selecting "LIMITED" at "OUTPUT RANGE", output image from VHR is "16 to 235" gradation image.

a) FULL

"0 to 255" full gradation image output from VHR.

b) LIMITED

"16 to 235" limited gradation image output from VHR.

## **Page 6**

1) EEPROM

The HD video settings in "Page 1" to "Page 7" can be saving into VHR's EPROM as the active-open PRESET. OSD SIZE and PATTERNS settings cannot be saved.

1-1) SAVE

Press <right> key to highlight the "SAVE". Press <exit> key to executing the "SAVE", the confirmation message "ARE YOU OK?" is displayed. When executing again <exit>, the settings save into the VHR. If you do not do this, the last saved setting will be active after turning the power off (<on/off> key) and then on (<on/off> key) again. The message "COMPLETE" is displayed after the settings are saved. When selecting other than "executing" while "ARE YOU OK?" message is displaying, data save process is cancelled.

To exit the VHR HD OSD Menu press the <vid> and <sto> keys.

1-2) RESET

When executing "RESET", confirmation message "ARE YOU OK?" is displayed. When executing again, all settings put back to factory default settings and defined by user graphics will be lost. The message "COMPLETE" is displayed.

When selecting other than "executing" while "ARE YOU OK?" message is displaying, data reset process is cancelled.



## VHR Info and short keys

When the VHR OSD Menu is not displayed then can be displayed the VHR Info about the active preset number, auto flicker-free mode, battery voltage, camera speed, film counter and pref number. You can on or off this info and set the text small or large by pressing **<sto> and <right>** keys. This procedure works in a loop, so release the keys if you see desired format.

If after the VHR is turned on and VHR info is not displayed then please turn VHR off and on again or press "SET" and "ON/OFF" keys.

By pressing the **<up>** key for 3 seconds AWB is set.

By pressing the **<right>** key for more then 2 seconds ZOOM+ for the video image will be active.

By pressing the **<left>** key for more then 2 seconds ZOOM- for the video image will be active.

By pressing the **<vid> and <right>** keys you can set color or b&w mode for the video image.

By pressing the **<vid> and <up>** keys you can increase LUMINANCE for the video image.

By pressing the **<vid> and <down>** keys you can decrease LUMINANCE for the video image.

By pressing the **<vid> and <exit>** keys you can set auto flicker-free mode on/off. Letter "A" -auto mode. Auto flicker-free mode will work for any camera speeds only if "AEE" is set to "FIXED" and SHUTTER is set -067, 1/23.9s and HD video format is set to 1080p50 (OSD Menu - Page 5).

By pressing the **<exit> and <right>** keys you can go to PRESET number+1 (presets from P0 to P7).

By pressing the **<exit> and <down>** keys you can go to PRESET number-1.

By pressing the **<sto> and <exit>** keys more then 3 seconds you can reset film counter on the screen and set units: meter or foot and Perf 2 or 3. This procedure works in a loop, so release the keys if you see desired setting.

By pressing the **<sto> and <up>** keys you can increase the film counter counts.

By pressing the **<sto> and <down>** keys you can decrease the film counter counts.