

## HD-SDI 1080P flickerfree conversion ver.2 for the Aaton Xtera VHR



### Specifications:

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

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

HD video output: 3G-SDI (SMPTE424M Compliant) 1080P60/59.94/50,

HD-SDI (SMPTE292M Compliant) 1080P30/29.97/25, 720P60/59.94/50

Minimum illumination: 0.6 Lux at F1.2

White balance: AWB, manual : R/G and B/G levels selectable from 0 to 65535

Gamma: selectable gamma through preset : 0.45, 0.6, 0.8, 1

Contrast selectable from 0 to 255

Sharpness selectable from 0 to 15

Line generator: both horizontal and vertical with all available colors

Shadow mask on/off

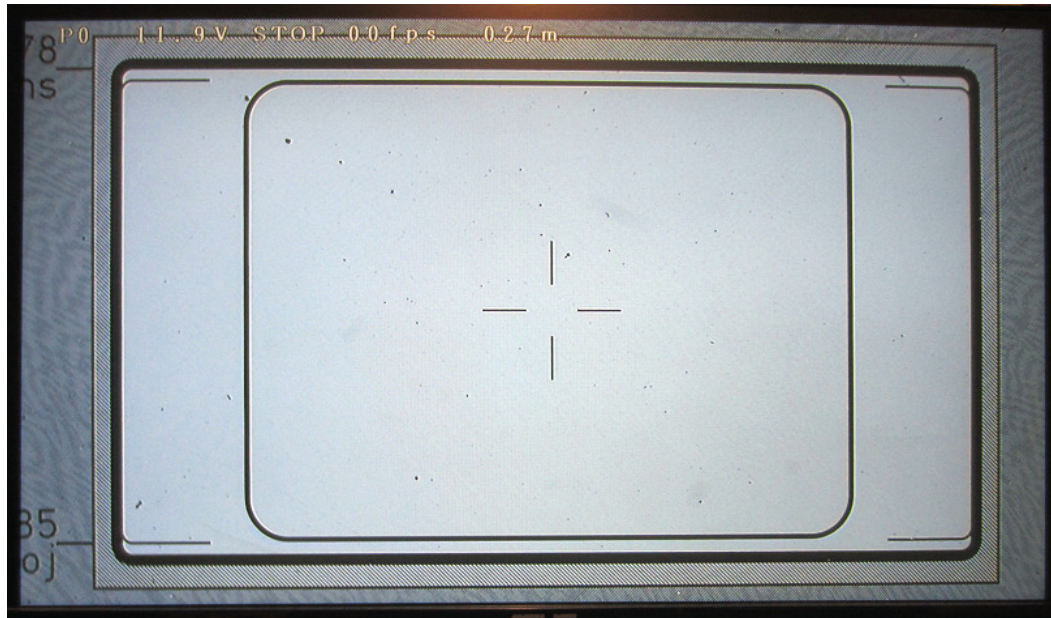
Circle maker with all available colors

Patterns to calibrate an HD monitor

VHR power consumption: 6W - 1080P, 4.5 W - 720P

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.

After HD conversion the VHR's upper BNC connector is digital SDI video output with data: preset number, battery voltage, camera run/stop, camera speed and film counter.



Lower BNC and 4pin Fischer accessory receptacle are analog composite without ground-glass image but only showing the data: camera speed, run/stop, footage, time code.



To display the VHR HD OSD menu on the HD video monitor screen, press the **<menu>** key.

The image parameters can be set by using the keys: **<up>**, **<down>**, **<left>**, **<right>**, **<store>**. VHR HD OSD menu consists of 6 pages. By pressing the **<store>** and **<down>** keys simultaneously allows to quickly move from one page to next.

If the menu was not called up and is not displayed, then by pressing a combination of two keys gives access to additional functions: letter size, data on/off, resetting the film counter, setting the film counter, color/b&w mode, zoom, changing the preset number. The list of the keys combinations is given at the end of the description after discussing page 6 of the menu (save the settings)

By pressing the **<up>** key for 3 seconds color temperature is set. By pressing the **<down>** key for 3 seconds predefined graphics (lines, circles and shadings) are included/excluded in the monitor image.

To exit the VHR HD OSD Menu press the **<menu>** key.

## **Page 1**

### **1) AE MODE**

Selects the exposure and the gain operation mode from below three modes.

#### **a) NORMAL**

The auto exposure and the auto gain operation.

The auto exposure operation mode when "OFF" is selecting at "PRI SHUTTER"

The longest exposure time is "1 / frame rate" time for the auto exposure operation.

If "PRI SHUTTER" selects other than "OFF", the VHR operates with the selected exposure time.

The auto gain operation mode when "OFF" is selecting at "PRI GAIN".

If "PRI GAIN" selects other than "OFF", the VHR operates with the selected gain.

Sets the target brightness level at "LUMINANCE" when "PRI SHUTTER" or "PRI GAIN" is OFF.

#### **b) LONG**

The auto exposure and the auto gain operation with the long exposure control.

The auto exposure operation mode when "OFF" is selecting at "PRI SHUTTER".

The exposure time becomes more than "1 / frame rate" time, which is the long exposure control depending on the target brightness. The frame rate becomes slower when the VHR operates with the long exposure control.

The auto gain operation mode when "OFF" is selecting at "PRI GAIN".

If "PRI GAIN" selects other than "OFF", the VHR operates with the selected gain.

Sets the target brightness level at "LUMINANCE" when "PRI SHUTTER" or "PRI GAIN" is OFF.

#### **c) USER MODE**

The manual exposure and the manual gain operation.

Sets the manual exposure time at "USER SHUTTER" and the manual gain at "USER GAIN".

To prevent the image from flickering on the monitor during camera runs, select the AE MODE - LONG or USER MODE option and set the PRI SHUTTER for LONG mode or USER SHUTTER for USER MODE equal to the camera speed by entering the appropriate numerical code. Examples of codes are presented in the list below.

6fps - 0615

12fps - 0533

20fps - 0499

24fps - 0415 or 0416 and for low light set 12fps - 0533 (double exposure for image sensor)

25fps - 0400

30fps - 0333

40fps - 0250

## 2) LUMINANCE

Sets the target brightness for the “NORMAL” and “LONG” auto exposure and the auto gain operation.

The brightness image maintains with the auto exposure and the auto gain operation.

Setting range: 0 (Dark) to 65,535 (Bright)

## 3) PRI GAIN

Sets the fixed gain for the “NORMAL” and the “LONG” auto exposure and the auto gain operation. Please sets “OFF” for the auto gain operation. To maintain the same image brightness when the camera is stopped or filming, it is necessary to select the LUMINANCE function and set PRI GAIN to OFF.

Setting selection: OFF / 1.2 dB / 3.31 dB / 5.12 dB / 6.92 dB / 9.33 dB / 11.14 dB / 12.94 dB / 15.34 dB / 17.16 dB / 18.96 dB / 21.37 dB / 24.0 dB / 27.09 dB / 29.2 dB

## 4) PRI SHUTTER

Sets the exposure time for the “NORMAL” and the “LONG” auto exposure and the auto gain operation.

Please sets “OFF” for the auto shutter operation.

Setting selection: OFF / 1/10,000 seconds (0.0001 seconds) to 2.55 seconds

## 5) USER GAIN

Sets the fixed gain for the “USER MODE” exposure and gain operation.

Setting range: 1.2 dB to 46.2 dB

## 6) USER SHUTTER

Sets the exposure time for the “USER MODE” exposure and gain operation.

Setting range: 1/10,000 seconds (0.0001 seconds) to 2.55 seconds

## 7) GAMMA

Sets the Gamma.

Setting selection: MANUAL, 0.45, 0.60, 0.80, 1.00

## **Page 2**

### 1) WB MODE

Selects the white balance mode from below four modes. (Default: AWB).

#### a) AWB

The auto white balance.

#### b) FULL OPEN

The full pull-in frame.

#### b) AWB HOLD

Hold the current white balance settings.

#### b) USER MODE

The manual white balance with “USER R/G” R gain and “USER B/G” B gain.

### 2) USER R/G

Sets the R/G gain for “USER MODE” white balance.

Setting range: 0 to 65,535

### 3) USER B/G

Sets the B/G gain for "USER MODE" white balance.

Setting range: 0 to 65,535

### 4) OFFSET

Sets the offset of the image.

Setting range: 0 to 127

### 5) CONTRAST

Sets the contrast of the image.

### 6) SHARPNESS

Sets the Sharpness (edge enhancement) of the image.

#### a) H

Sets the horizontal sharpness.

Setting range: 0 (soft) to 15 (strong)

#### b) V

Sets the vertical sharpness.

Setting range: 0 (soft) to 15 (strong)

#### b) COR

The noise level also emphasizes when using the sharpness function.

The SN ratio deteriorate for the other than the edge parts is prevented by cutting the signal level that smaller than this setting.

The image becomes the soft image if this setting sets too large.

Setting range: 0 to 63

## **Page 3**

### 1) GRAPHICS

Selects enable or disable for the line makers and the shadow mask display.

#### a) ON

The line markers and the shadow mask can be display.

The line makers display enable or disable is selecting at "LINE"

The shadow mask display enables or disable is selecting at "SHADOW".

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

Sets the grade, the position for the shadow mask.

#### b) OFF

The line markers and the shadow mask do NOT display.

### 2) LINE

Selects enable or disable for the Line markers display.

This setting is only valid when "GRAPHICS" is "ON".

#### a) ON

The line makers can be display.

Sets the color and the size (thickness) and the position for the horizontal line 1, the horizontal line 2, the vertical line1 and/or the vertical line 2.

#### b) OFF

Line Markers do NOT display.

3) Horizontal line 1 maker and vertical line 1 maker settings.

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

a) H POS

Sets the position for the horizontal line 1.

Setting range: 0 (top) to 1,080 (bottom)

b) H SIZE

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

Setting range: 0 (0 line, no horizontal line) to 1,080 (1,080 lines)

c) H COLOR

Sets the color for the horizontal line 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 the vertical line 1.

Setting range: 0 (left end) to 1,920 (right end)

e) V SIZE

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

Setting range: 0 (0 pixel, no vertical line) to 1,920 (1,920 pixels)

f) V COLOR

Sets the color for the vertical line 1.

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

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

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

a) H POS

Sets the position for the horizontal line 2.

Setting range: 0 (top) to 1,080 (bottom)

b) H SIZE

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

Setting range: 0 (0 line, no horizontal line) to 1,080 (1,080 lines)

c) H COLOR

Sets the color for the horizontal line 2.

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

Default: BLACK

d) V POS

Sets the position for the vertical line 2.

Setting range: 0 (left end) to 1,920 (right end)

e) V SIZE

Sets the size (thickness) for the vertical line 2.

Setting range: 0 (0 pixel, no vertical line) to 1,920 (1,920 pixels)

f) V COLOR

Sets the color for the vertical line 2.

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 the line makers and the shadow mask. (Default: OFF).  
This function in the page 3 and in the page 4 is the same function.

### **2) SHADOW**

Selects enable or disable for the shadow mask display (Default: ON).  
This setting is only valid when "GRAPHICS" is "ON".

#### **a) ON**

The shadow mask can be display.  
Sets the grade and the position for the shadow mask.

#### **b) OFF**

The shadow mask does NOT display.

### **3) Shadow mask settings**

#### **a) GRADE**

Sets the grade of the shadow mask.  
Setting range: 0 (no grade, the image is visible) to 255 (back)

#### **b) SHADOW H T**

Sets the position for the top area of the shadow mask.  
Setting range: 0 (top) to 1,079 (bottom)

#### **c) SHADOW H B**

Sets the position for the bottom area of the shadow mask.  
Setting range: 0 (top) to 1,080 (bottom)

#### **d) SHADOW V L**

Sets the position for the left area of the shadow mask.  
Setting range: 0 (left) to 1,919 (right)

#### **e) SHADOW V R**

Sets the position for the right area of the shadow mask.  
Setting range: 0 (left) to 1,920 (right)

### **4) CIRCLE**

Selects enable or disable for the circle maker display (Default: ON).  
This setting is only valid when "GRAPHICS" is "ON".

#### **a) ON**

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

#### **b) OFF**

The circle maker does NOT display.

### **5) Circle maker settings**

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

#### **a) RADIUS**

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

#### **b) SIZE**

Sets the size (thickness) for the circle.  
Setting range: 0 (0, no circle) to 480

c) H POS

Sets the horizontal center position for the circle.

Setting range: 000 (left end) to 1,920 (right end)

d) V POS

Sets the vertical center position for the circle.

Setting range: 000 (top) to 1,080 (bottom)

e) COLOR

Sets the color for the circle.

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

Default: BLACK

## **Page 5**

1) RES / FPS

Sets the image format and the frame rate for the video output from below nine output formats.

Please changes the video output format and the frame rate to match the specifications for the monitor or the capture devices. Setting selection: 1080P60 / 1080P30 / 1080P50 / 1080P25 / 720P60 / 720P50 / 1080P59.94 / 1080P29.97 / 720P59.94

2) OSD SIZE

Sets the character size of OSD (Default: LARGE).

a) LARGE

OSD display with the large character.

b) SMALL

OSD display with the small character.

3) PROFILE

Preset data PRESET0 to PRESET7 can be apply to the VHR. (Default: PRESET0)

To change the PRESET, select PRESET and use SAVE function after change the settings.

Setting selection: PRESET0 / PRESET1 / PRESET2 / PRESET3 / PRESET4 / PRESET5 / PRESET6 / PRESET7

a) PRESET0 to PRESET7

The settings of the selected preset are applied to the VHR.

4) PATTERNS (color bars)

These patterns are useful to calibrate an HD monitor.

Selects the output signal from below four output signals:

a) OFF

The video is output from the VHR.

b) GRAY

The gray scale test pattern is output from the VHR.

c) COLOR

The color test pattern is output from the VHR.

d) GRAY+COLOR

The color pattern (top) + gray scale (bottom) test pattern is output from the VHR.

5) IMAGE OUTPUT

Selects the flip image setting for the video output from below four flip modes.

This setting does NOT apply for the test pattern outputs.



- a) STANDARD  
The normal image (no-flip).
- b) INVERSION  
The horizontal flip image.
- c) V INVERSION  
The vertical flip image.
- d) HV INVERSION  
The horizontal and the vertical flip (180 deg. rotate) image.

## **Page 6**

### **1) EEPROM**

The HD video settings in "Page 1" to "Page 5" 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 **<store>** key to executing the "SAVE", the confirmation message "ARE YOU OK?" is displayed. When executing again **<store>**, 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.

#### **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.

To exit the VHR HD OSD menu press the **<menu>** key.

## **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, battery voltage, camera speed, film counter. You can on or off this info and set the text small or large by pressing simultaneously the **<store> and <shift>** keys. This procedure works in a loop, so release the keys if you see desired format.

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

By pressing the **<down>** key for 3 seconds predefined graphics (lines, circles and shadings) are included/excluded in the monitor image. These two hold functions will not be active after film counter reset. To reactivate them please press simultaneously the **<store> and <shift>** keys.

By pressing simultaneously the **<exit> and <right>** key ZOOM+ for the video image will be active.

By pressing simultaneously the **<exit> and <left>** key ZOOM- for the video image will be active.

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

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

By pressing simultaneously the **<exit> and <down>** keys you can decrease the film counter counts

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

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

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