Basic Shooting Functions

Using auto functions for quick-start shooting

Breaking news and documentary production often require a quick response to capture the right moment. When you don't have time to make manual adjustments, the complete line of AUTO functions available with the HVR-Z7 and HVR-S270, mean that you can start shooting immediately with confidence in the resulting images and sound.

Video settings

- If the AUTO/MANUAL switch is set to AUTO, then the functions of gain, shutter speed, white balance and iris are all controlled automatically.
- Slide the rubber focus ring toward the lens hood to set the AUTO FOCUS in mode B. This will release the manual focus mechanism. Slide the ring rearward to return to manual focus mode.
- Once the iris setting is in automatic mode, the optimum ND FILTER value will flash on the left side of the viewfinder Please adjust the ND FILTER as required for shooting in bright conditions.
- The ND1 setting is CLEAR for normal shooting conditions. ND2 is 1/4, ND3 is 1/16, and ND4 is 1/64, with the higher filter numbers providing more light reduction. ND filters are necessary for sun, surf and snow conditions.

Audio settings

- Set the AUDIO LEVEL switch to AUTO on both CH1 and CH2.
- Use the audio settings described below for normal operation.
 - If CH1 + CH2 is selected for REC CH SELECT, and a shotgun microphone is connected to INPUT1, the sound from the microphone will be recorded on both CH1 and CH2.
 - Set the INPUT1 switch to MIC+48V, to activate the phantom power supply for the shotgun microphone. Failure to do this will result in loss of audio.
 - Use an earphone or headphones to check audio quality and levels.
 - Always keep the audio level indicator set at LCD /EVF.

 MENILL DISPLAY SET NALLY/L DISPLAN.
 - MENU ▶ DISPLAY SET ▶ AU.LVL DISP ▶ ON
 - To confirm the AUDIO setting, push the STATUS CHECK button at the lower rear corner of the camera.

Focus operations

Mastery of accurate focusing is necessary to take advantage of the increased resolution captured by HD. Soft focus images will be more pronounced when viewed on large HD monitors.

AF/MF switching of Carl Zeiss lens

- When using the standard Carl Zeiss lens, the focus ring can be set to either mode A or mode B, depending on the position of the sliding focus ring. In mode A, full manual operation without AUTO FOCUS is available. In mode B, either FULL AUTO FOCUS or manual operation + ONE PUSH AUTO FOCUS functions are available. Therefore, flexible focusing options are available to suit all possible shooting situations.
- Mode A FULL MANUAL FOCUS:Slide the focus ring rearward to set the lens into mode A. Focusing can be now adjusted manually, and the focal distance to your subject can be calculated using the distance scale written on the focus ring. Focus adjustment is now performed in the same manner as with professional video lenses designed for broadcast-use. The distance scale indicated inside the LCD/EVF also becomes a guide to focusing.
- Mode B AUTO FOCUS:In the same manner slide the focus ring forward to set the lens into mode B. Factory default mode B is set to FULL AUTO FOCUS. In case it isn't set to FULL AUTO FOCUS, please confirm using the menu selection. It may be set to ONE PUSH AUTO FOCUS as shown below.



Switch: HVR-Z7



Switch: HVR-S270



Focus ring



●Audio switch:HVR-Z7



●Audio switch:HVR-S270

Focus-related functions

Temporary AF = ONE PUSH AF (One push auto focus) ASSIGN ONLY

- While remaining in manual focus mode, one push auto-focus is very convenient to quickly bring the picture into focus and establish a reference for additional manual adjustments.
- It is also possible to assign mode B of the focusing ring to manual focus, in the same manner as the DSR-PD170 and HVR-Z1. Its function is to temporarily activate the auto focus feature by pushing an Assign button, which must be pre-assigned to ONE PUSH AUTO FOCUS. In this case, the focus position and the distance scale on the focus ring are no longer related.

Examples

- One push AF is convenient to use when the color or brightness makes it hard to determine correct focus in the LCD screen or the viewfinder, while you're manually shooting a performance onstage or in some other low light situation.
- Even when you're shooting sports using manual focus, you can switch the operation mode without taking your eye away from the viewfinder by using the ONE PUSH AUTO FOCUS button when your subject is either approaching toward or moving away from the camera. This feature allows you to make focusing adjustments without losing concentration on framing and composition of your subject in the viewfinder.

How to set / operate

Select MENU ▶ OTHERS ▶ ASSIGN BTN to assign the following functions to any two of the assign buttons:

ONE PUSH AF (Example: Assign to L1 button.) FOCUS (Example: Assign to ASSIGN 1 button.)

- ② Slide the focus ring forward and push the ASSIGN 1 button to switch the operation method of mode B from FULL AUTO to manual operation. (The F-mark icon 🕞 will be indicated at the lower left of the screen.)
- **3** While pushing the L1 button, AUTO FOCUS is temporarily enabled.
- **(a)** If you push the ASSGIN1 button once again, the F mark disappears and the focus operation of mode B returns to FULL AUTO.



ONE PUSH AF

Focusing on a distant subject

= FOCUS INFNTY (focus infinity) ASSIGN ONLY

■ While you're manually adjusting the focus, you can shift to the maximum telephoto focus position quickly by pushing the Assign button.

Examples

• In case you have difficultly focusing on a distance scene when shooting through a glass window or with a foreground subject

How to set / operate

- In the same procedure used to program ONE PUSH AUTO FOCUS, assign FOCUS INFINITY to the assign button instead of ONE PUSH AF.
- 2 Push the assign button, to which FOCUS INFINITY is assigned, to adjust the focus position to infinity.

Manually changing the focus position while using AF=AFASSIST

A function to manually move the focus position that had been previously set by AF.

Examples

- Where there are two or more subjects on screen and you want to focus on a small subject or a subject at the edge of the screen, and thereby it is difficult to focus on.
- Even while using AF, in case you want to intentionally change focus.
- In case the camera mistakenly focuses on the glass surface while shooting through a window.

How to set / operate

Select CAMERA SET ▶AF ASSIST ▶ ON.

NOTES

• As the AF continues to work, it may return to the initial focus position even if you manually change the focus position

To mark the focus position in advance = FOCUS MARKING

- FOCUS MARKING is a function that is convenient for manual focusing.
- In professional production work, sometimes focus marking was done with stickers placed directly onto the focus distance scale of broadcast or pro-use lenses. This new function provides the same convenient feature on screen.

■ Marking two focus positions can be done in advance. It's possible to manually focus the lens while watching the mark on the screen or in the viewfinder. You can then move to a precise focus position without looking away from the subject.

Examples

- When you want to precisely change focus between close and distant objects.
- When it is difficult to check the focus while shooting in a low-light environment.
- When you want to capture a moving subject like a singer or performer, if you set his/her focal position in advance, i.e. microphone stand, you can quickly focus on it whenever the performer begins to sing.

How to set / operate

- MENU ▶ CAMERA SET ▶ S.TRANS/F.MARK ▶ FOCUS MARKING.
- Push the leftmost of the three SHOT TRANSITION/FOCUS MARKING buttons on the upper surface of the main unit to display the focus-marking bar on the screen.
- Set the focus ring operation to FULL MANUAL in mode A. Select a focus position using the focus ring. Push button A or B to complete the marking process, and then repeat to mark another focus point in preparation for shooting.
- 1 It is possible to operate the focusing ring while checking the focus points A and B on the screen.
- **⑤** Example: As a person turns to look back at something he just walked past, the focus on the subject's face can be set to focal distance A and the distant object to focal distance B. If the actor hits his mark he will be in focus at position A, and as he turns his gaze the camera operator can select position B to create a smooth rack focus change.



●FOUCUS MARKING

NOTES

Marking data will be deleted when the main unit is turned off.

Focusing is easier in LCD/VF = EXP.FOCUS (expanded focus) ASSIGN ONLY

- In order to make focusing easier with the high-resolution viewfinder or LDC display, temporarily enlarge the center of the screen about 200% to check the focus.
- Enlarged focus is the default setting assigned to button L2, which is located near the lens zoom lever and can be pushed with your forefinger, making it very convenient to use.

TIPS

● If you select TYPE 2 from MENU ▶ DISPLAY SET ▶ EXP. FOCUS TYPE, the screen will become monotone during expanded focus, therefore it is easier to concentrate on focusing, and also it gets easier to judge ON/OFF of extended focus and whether or not the Digital Extender is enabled.

NOTES

- This function is not available while recording.
- It becomes about 150% larger in progressive scan/recording mode.
- This function is not available unless MENU ► IN/OUT REC ► EXT REC ► REC CTRL MODE is set OFF. Please be careful when you use external recording devices (including the HVR-MRC1 memory recording unit or HVR-DR60 hard disk recording unit).

To make focusing easier in the LCD/VF = PEAKING ASSIGN

- Another method to make focusing easier in the high-resolution LCD viewer and viewfinder is to select display PEAKING.
- By highlighting the image outline, it gets easier to see whether it is correctly focused or not in the LCD/VF.
- If you raise the PEAKING level to HIGH, it becomes easier to focus, but more signal noise also becomes visible in the LCD/EVF. Therefore, you should compare the effect between HIGH, MIDDLE and LOW to decide which PEAKING level is most convenient to use or focus simply by viewing the image.
- If you would like to frequently switch this feature ON/OFF, it is recommended to memorize it with the AS-SIGN button function.

How to set / operate

- MENU ► CAMERA SET ► PEAKING ► ON. Or set with the ASSIGN button.
- ② Select level from CAMERA SET ▶ PEAKING ▶ LEVEL ▶ HIGH / MIDDLE / LOW.

When using interchangeable video lens

- Basically the same as when using full manual operation in mode A.
- However, Auto-Focus related functions are not available.
- Expanded focus function can be assigned to the lens RET button.

Functional difference by focus mode			
Function	Carl Zeiss lens (supplied lens / optional wide lens)		Interchangeable video camera lens Manual Focus only
	Foucus ring mode		
	mode A Full Manual	mode B Auto or Manual operation	Wandar Foods only
Distant scale	Yes		Yes
FOCUS MARKING	Yes		_
EXPANDED FOCUS	Yes	Yes	Yes
AF ASSIST	_	Yes (in auto mode)	_
FOCUS INFINITY	_	Yes (in manual mode)	_
ONE PUSH AUTO FOCUS	_	Yes (in manual mode)	_

To master **ZOOM RING**

- There are three types of zoom operation available:
 - 1. to turn zoom ring in manual operation
 - 2. to use the full-size, side-grip professional zoom lever
 - 3. to use the handle mini-zoom lever.



■ When using a zoom ring, the zoom operation must be done after setting the zoom switch below the lens to MANUAL. If the zoom ring turns freely, it is set to MANUAL. If you feel resistance do not force the ring, it means the zoom switch is set to SERVO. Please confirm in advance.

ZOOM LEVER

- The variable speed of the zoom can be easily controlled depending on its setting. If you push the zoom lever lightly, a very slow zoom is possible. You can maintain a constant zoom speed more easily than by manually operating the zoom ring. Therefore the use of the zoom lever is recommended for occasions when you want to achieve a constant zooming speed.
- The zoom control of the HVR-Z7 and HVR-S270 is designed to activate smoothly at the start and end of the zoom movement.
- For faster zooming speeds, manual operation of the zoom ring is recommended.

NOTES

• Take care not to forcibly operate the ZOOM RING when the automatic SERVO motor is engaged, or you may damage the internal mechanism.

HANDLE ZOOM LEVER

- If you use the handle zoom lever located on the carrying handle of the camera, you can easily zoom with one hand even while shooting at a low angle.
- If you turn the handle zoom switch beside the handle to VAR, variable zoom operation is possible just like main zoom lever. Compared to the main zoom lever, the control switch is smaller and stroke is shorter, therefore, it is recommended to use full-size control on the side of lens for any delicate operations.
- Turn the position of handle zoom switch to the "FIX" or fixed position, to achieve the constant zoom speed selected in the menu.

How to set / operate

Select from MENU ► CAMERA SET ► HANDLE ZOOM ► 1~8. (Lower numbers mean slower zoom speed)

TIPS

• In using the handle zoom switch, your fingers may sometimes touch the handle unexpectedly. To avoid improper operation, it is recommended to set it OFF when not in use.

NOTES

● When using remote controller (RM-1BP) based on the LANC system, no remote zoom operation for interchangeable video lenses is available. Only the REC START /STOP is available. You will need a zoom remote controller for interchangeable video lenses.



Zoom switch

Brightness adjustment

To consistently record beautiful images, correct brightness adjustment is a key element. Images that are too bright and overexposed will not be considered of acceptable quality, unless this was the original intention for some artistic effect. Also, underexposed areas due to low-light conditions during shooting cannot be corrected to provide additional detail in the editing process. Lenses for HVR-Z7 and HVR-S270 are designed based on the operability of conventional pro-use zoom lenses. Therefore, flexible iris control by manual operation is available. In addition, functions are installed to provide optimum exposure. It is recommended that users master those functions.

Using the IRIS RING

Switching MANUAL/ AUTO IRIS

■ The standard Carl Zeiss lens and many of pro-use zoom lenses are equipped with a switch for manual/auto switching for Iris, near the zoom lever. Even in manual operation, AUTO IRIS can be temporarily enabled if you push the PUSH AUTO button.

Using the ND FILTER

The Neutral Density filter is a built-in filter that can reduce the light source intensity without changing the image colors.

- The HVR-Z7 and HVR-S270 have three built-in ND filters of 1/4, 1/16, 1/64. The light quantity difference between each ND filter corresponds to the equivalent of two stops of the iris value
- Generally, in the case of a camera with 1/3 inch type sensors, image resolution may be noticeably reduced if the iris is closed below F6.8. If you shoot with an optimum iris value by switching the ND filter as required, you will achieve higher quality images.
- You can refer to the recommended ND filter value, which automatically flashes on the left side of the monitor screen whenever the iris is being automatically adjusted.

Use AUTOMATIC EXPOSURE (AE) function to automatically control the image brightness.

- AUTO EXPOSURE (AE) is a camcorder function that automatically adjusts one or more of the parameters IRIS, SHUTTER SPEED and GAIN to achieve optimum image exposure.
- When using the HVR-Z7/S270, by switching the AUTO/MANUAL switch to AUTO, the WHITE BAL-ANCE also can become automatically controlled in addition to the above-mentioned parameters. While it is switched to MANUAL, by pushing the GAIN button for example, it becomes possible to switch to auto or manual in terms of GAIN only. On such occasions, the parameter with an "A" icon indicates that it is automatically controlled.
- Even if you shoot with AE, it is not an all-round function that can solve every exposure problem. However, AE shooting can be done effectively by mastering the camcorder's AE support functions.



= AE SHIFT ASSIGN

Raising or lowering the exposure level can be set with the AE SHIFT.

Examples

- When the background, like a beach or snow hill, is brighter than your subject, AE shooting can help compensate to achieve a better result. Normally, if you try to simply increase the exposure level to suit the face of your subject, the background will become too bright. In this case you should shift the AE level to the + (plus) side.
- When the background is dark and your subject is overexposed, it is recommended that you shift the AE level to the - (minus) side to reduce the exposure on your subject.

● Select MENU ► CAMERA SET ► AE SHIFT. Level selection is available from -7 (dark) to +7 (bright). Or you can register this feature to an ASSIGN button and select the level with the jog dial.

NOTES

• The AE function is able only when one or more functions of IRIS, SHUTTER SPEED or GAIN are automatically controlled.

AUTO shooting while maintaining the brightness of one corner = AE WINDOW

■ This is a function to assign an AE area to be a subject of photometry.



Auto and manual control







Examples

- While maintaining a constant brightness for a subject, without being affected by the brightness of other elements in the frame.
- When shooting many scenes with a spotlight focused on the center of the frame, such as a music concert or theater performance. If you maintain the center exposure at an optimum level while shifting the zoom to wide, darker sections will increase in the frame and cause the camera to overcompensate.
- If you are shooting contrasting elements such as land and sky and you want to maintain the optimum exposure without being affected by the light variation in other screen elements.

How to set / operate

Select MENU ▶ CAMERA SET ▶ AE WINDOW. Select STANDARD or select from TYPE1~5.







●AE window Image

GAIN Functions

Optimum exposure by adjusting GAIN functions.

GAIN is a function that makes an image brighter through electrical amplification of image signals. When shooting in variable lighting conditions, switching gain settings makes it possible too accommodate changes in brightness. This is now possible with the advanced features incorporated into the HVR-Z7 and HVR-S270 camcorders, even in the case where the brightness of a subject or shooting environment changes, exceeding the available adjustment range of the iris and ND filter. Although GAIN is normally used to boost the signal in low light environments, minus GAIN is also available to help reduce the light source in extremely bright situations like sun, surf and snow.

Setting up the gain value = GAIN SETUP

■ It is possible to choose any value between -6dB and 21dB for each gain switch H, M and L, located at the side of the camera unit.

How to set / operate

Select from CAMERA SET ▶ GAIN SETUP ▶ H, M, L ▶ -6, -3, 0, 3, 6, 9, 12, 15, 18, 21dB.

Minus GAIN

- With the Gain setting, it is possible to select -6dB or -3dB as well.
- It can be helpful when you want to further reduce any visible signal noise in dark areas of the frame to below 0dB.
- It functions to make the image darker by electrically reducing the image signal level. This is useful in situations where you cannot get an optimum exposure even when adjusting the iris ring and the built-in ND filter together, due to an extremely bright light source.

To obscure the difference when switching GAIN.

= SMOOTH GAIN

You can smooth the brightness change when switching GAIN settings.

How to set / operate

Select from CAMERA SET ► SMOOTH GAIN ► OFF, FAST, MIDDLE, SLOW.

The time required for the GAIN change is as follows:

FAST: About 1 second MIDDLE: About 2 seconds SLOW: About 4 seconds

Shooting in extremely low light situations

= HYPER GAIN ASSIGN

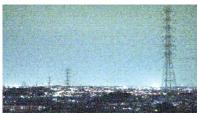
- This function allows you to shoot a subject even in a dark environment by boosting the image signal's amplification higher than with standard GAIN settings.
- It is ideal for situations where it is difficult to use additional lighting. For example when shooting animals in the wild at dusk, it is possible to capture color images in a brighter looking environment.
- When you don't want to miss an important shot and a certain amount of signal noise in the resulting image is acceptable, Hyper Gain is a valuable tool to have on hand.
- If you are planning to use the HYPER GAIN function frequently, it is recommended to program it in advance by using the ASSIGN button.

How to set / operate

Select from CAMERA SET ► HYPER GAIN ► ON.



●HYPER GAIN OFF



●HYPER GAIN ON

How to use the necessary functions to achievement optimum exposure

Check if the subject's brightness level is optimum

= ZEBRA ASSIGN ASSIGN

- By activating the zebra-stripe pattern function, the overexposed areas of an image will be indicated on the LCD/VF, allowing you to use it as a reference when making brightness adjustments. Note that the zebra-stripe pattern will not be recorded on tape or external recording device..
- When you want to monitor overexposed areas on screen, set the ZEBRA value to 100+. Then carry out brightness adjustments to reduce the zebra-stripe pattern as much as possible.
- For example, in the situation where you want to shoot a person's face at a brightness level of about 75%, set the zebra value to 75%. Then carry out brightness adjustments so that the zebra-stripe pattern will be displayed

How to set / operate

 Select from DISPLAY SET ▶ ZEBRA ▶ ON. Select from LEVEL ▶70,75,80,85,90,95,100,100+.

By programming it to the ASSIGN button in advance, you can easily turn it ON/OFF . (Factory default value is set to the ASSIGN button No.4).

Brightness balance of the entire image = HISTOGRAM

- HISTOGRAM shows the brightness level of the full screen in the form of a bar graph.
- The horizontal scale shows the brightness level, and the vertical scale shows the number of pixels at each brightness level. If the distribution is weighted toward the right side, then the image has many bright areas. By using this feature, the exposure balance of the image can be analyzed at a glance.
- ADVANCED HISTOGRAM uses a red bar to indicate the average brightness level of the marker area displayed in the screen center. By understanding the relative brightness level relationship between the main subject and surrounding elements, you can make appropriate exposure adjustments.
- The brightness level set up with the ZEBRA feature is indicated by orange-colored lines. Therefore, it is easy to visually figure out how much the subject's brightness level has to be adjusted in order to achieve the target level exposure settings.



Select DISPLAY SET ► HISTOGRAM ► ADVANCE.

White Balance

To capture natural looking skin tones or accurately reproduce a scene, it is necessary to adjust the color balance before you begin shooting. The white balance adjustment can be set by focusing the camera on an industry standard adjustment board, or even a white piece of paper, as a reference to determine the appropriate color temperature adjustment. It is also possible to create special effects by modifying the white balance setting in various ways once you understand how to vary the internal settings.

For example, putting a colored lighting gel in front of the camera to fool it into thinking the scene contains more of that particular color than it actually does, will produce a resulting image with stronger colors on the opposite side of the color spectrum. i.e. using a light blue gel will produce warmer skin tones or deeper orange

To shoot a white subject in true white color

= One Push WHT BAL

How to set / operate

- 1 Push the WHT BAL button on the camera unit to activate Manual White Balance mode.
- 2 Select A or B using the WHITE BALANCE MEMORY switch.
- 3 Use auto-iris to let the camera roughly adjust the correct exposure. Then zoom and focus on a standard adjustment board or a subject that contains white, such as a piece of paper or t-shirt. Then push the one push button and hold until it stops blinking.
- 4 The mark shown on LCD/VF flashes, and the color temperature is displayed and memorized.
- (5) A convenient system is to use preset A for direct light and preset B for shadows, to allow quick manual adjustment either indoors or outdoors.

Smooth transition when switching White Balance = SMOOTH WB

■ You can automatically make smooth color temperature changes with the White Balance switching feature.



Example

- When you move from natural to artificial lighting while shooting, the white balance changes smoothly to maintain good color reproduction.
- When following a subject moving through an exterior doorway, the color temperature will change dramatically. However, SMOOTH WB will make the transition gradually, in the same way as the human eye, to maintain a natural feeling for the viewer.

How to set / operate

Select from MENU ▶ CAMERA SET ▶ SMOOTH WB ▶ OFF,FAST,MIDDLE,SLOW.

The times required for the respective changes are as follows:

FAST: About 1 second MIDDLE: About 2 seconds SLOW: About 4 seconds

Directly set WB by color temp

- **= WB TEMP SET** (white balance temperature set)
- Color temperature can be specified with values such as 3200K and 6500K.

Example

- When you want to match the white balance setting with other broadcast and professional use cameras that can setup color temperature by specifying numerical values.
- When your production will take several days and you want to keep the numeric value information as shooting data.

How to set / operate

- ① Select PRESET in WHITE BALANCE MEMORY SWITCH of the camera unit.
- ② Select MENU ▶ CAMERA SET ▶ WB PRESET ▶ MANU WB TEMP.
- Select from MENU ► CAMERA SET ► WB TEMP SET ► 2300K~15000K.
 (Selectable in unit of 100K)

Or;

Push the "one push" button
 to highlight the color temperature display, and then change the color temperature with the jog-dial. Push the "one push" button
 again or push the jog dial to enter.

TIPS

• In some cases the white balance cannot be adjusted correctly by color temperature specifications alone, i.e. under fluorescent or LED lighting. In these instances, it is recommended to use it in combination with the PictureProfile WEB SHIFT feature.



●White balance temperature

Control the color image by WB

- = WB OUTDR LVL (white balance outdoor level)
- This function allows you to change the color temperature of the White Balance Preset: OUTDOOR (The default is about 5800K).

Example

- In case you cannot prepare a white subject for white balance adjustment.
- In case you want to get a uniform white balance among multiple cameras.
- In case you want to add stronger orange tones to warm up a summer scene, or stronger blue tones to add a colder feeling to a winter scene.

How to set / operate

- Push the WHT BAL button of the camera unit to get MANUAL WHITE BALANCE mode.
- 2 Select PRESET of WHITE BALANCE MEMORY SWITCH of the camera unit.
- Select MENU ▶ CAMERA SET ▶ WB PRESET ▶ OUTDOOR.
- **4** Select CAMERA SET ▶ WB OUTDR LVL ▶ -7 \sim +7 (It changes about 500K per step.)

Or;

TIPS

• The same function is installed also in both HVR-Z1 and V1. By setting a common level among these models, you can get an almost uniform color temperature among them.

■WB OUTDR LVL=-7

WB OUTDR LVL=+

Control WB or use as a color filter

= WB SHIFT of PICTURE PROFILE

(See "PICTURE PROFILE.")

