

NORTHMETRO TV

Advanced Portable Camera

Panasonic DVX 100B



Table of Contents

Camera Checkout Policies and Rules

Introduction to Panasonic DVX100B

Camera Operation	PAGE
Focus	3
Zoom	3
Time Code	4
White Balance	4
Light temperature	4
Exposure/Iris	5
Depth of Field	5
Gain	5
Zebra Pattern	5
ND Filters	5
Progressive/Interlaced	6
Scene Files	6
<u>Understanding shots and composition</u>	7
Scale	8
Angle	8
Rule of Thirds	8
Lead Room/Head room	8
180 Degree Rule	8
<u>Audio</u>	
Listening and Watching	9
Connecting Microphones	9
Level Meters	9
Line vs. Mic	9
Pre-Production Check List	10
Talent Release Forms	10

Introduction to Panasonic DVX100B

The Panasonic DVX100B was designed for professional use and is one of the most popular cameras for independent film and television. In essence, the AG-DVX100 series combines a Handy cam-like form with the full complement of external professional controls and connections usually found only on bigger, shoulder-mounted cameras.

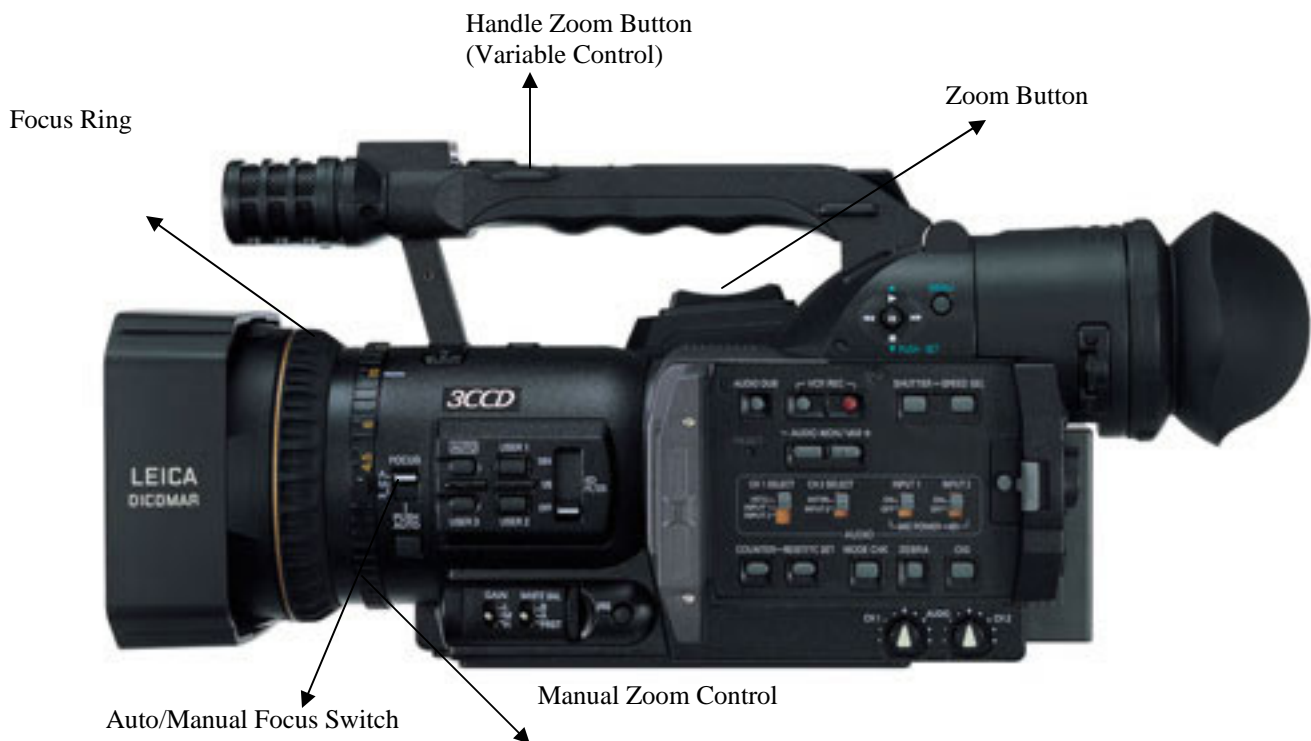
When you understand everything this camera has to offer, and learn to use these professional functions properly, you will be well on your way to creating high quality video for your TV or movie projects. This class is intended to introduce you to this camera and teach you on some more advanced concepts and techniques, so that you can make more educated decisions about how to best obtain quality video and audio.

Focus and Zoom

Focusing and zooming are basic elements of field shooting and it is necessary to understand how to use them properly. To focus on a subject zoom in as far as the camera will go and spin the focus ring until the image appears sharp. If the camera or your subject moves to a greater or lesser distance then you will lose your focus. Make sure your camera is set to M by moving the switch located on the front of the DVX100B to that position. On the top right of your LCD or Viewfinder screen you are able to keep track of your zoom and your focus settings which can aid you when shooting on the fly.

Zooming not only makes your image larger, but causes the image to be vulnerable to “shake”. Be wary when shooting handheld! Also when you zoom in it makes objects in the image appear more flat because it narrows the depth of field. Conversely staying wide and moving the camera closer will maintain depth and lessen visible camera shake.

Experiment: Put the camera on a tripod. Zoom out and move the handle back and forth. Now do the same with it zoomed in. Do you notice a difference camera shake? Also, pay attention to how different background objects appear to be farther apart when wide (zoomed out) than they do when you zoom in.



Time Code

Time code is the electronic timing signal burnt into the DV tape every time you press record. It measures hours, minutes, seconds and frames. It is used to accurately locate footage on a tape. When ever the camera starts recording from a spot with no time code, the camera starts the time code all over again from zero. This often happens when you are reviewing footage, and go past the last frame of video. Be careful of this, because when your computer starts searching for video to batch capture, things can get a little tricky. It is a good idea, to always try to make your tape keep one, single, continuous time code for this reason.

White Balance

The white balance button is located on the front of the camera under the lens and is labeled AWB. Hold up a white card in the lighting that you'll be shooting in, zoom until you fill the screen with the white card and press the AWB button. White balance does a couple of things. First, it tells the camera what is white, so that it can adjust the other colors accordingly. Second, it also measures the temperature of the light. Different light has different temperatures, failing to re-white balance while switching lighting situations can have some undesirable effects. Light is measured in degrees **Kelvin**. Let's look at some common light temperatures.

Sunlight is typically 5600 degrees Kelvin. Footage will look blue if the camera is not white balanced properly.

Tungsten Light (studio light/professional light kit) is typically 3200 degrees Kelvin. Footage will look orange if not properly balanced.



Whit Balance Button

Fluorescent Light is typically 2500-2900 degrees Kelvin. Footage will look green or red if not properly white balanced.

The DVX100B has a switch that allows the camera to save white balance settings located between the Iris and the Gain. It has a B, A, and PRST setting. If you white balance while it is set on "B", then change lighting situations move the switch to "A" and white balance. Now if you go back to the original lighting situation (for example "B" is set while outdoors and "A" indoors,) then you simply have to switch from "A" to "B" when going back

outdoors. Be wary of any light changes though like the sun going down or a sunny area becoming shady. You will have to re-white balance. The **PRST is locked onto 3200 degrees Kelvin**, which is only used when all of your light is from a professional (Tungsten)light kit.

It is best to use only one type of light source at a time. Using multiple different light sources (for example shooting in a room that has fluorescent lights on with sunlight coming through a window) can cause problems with the color and overall quality of footage. If you have no choice white balance on the subject trying different angles until you are satisfied with the color of the footage.

Experiment: Try white balancing on a blue or magenta colored card. What do you think will happen?

Degrees Kelvin	Type of Light Source	Indoor (3200k) Color Balance	Outdoor (5500k) Color Balance
1700-1800K	Match Flame		
1850-1930K	Candle Flame		
2000-3000K	Sun: At Sunrise or Sunset		
2500-2900K	Household Tungsten Bulbs		
3000K	Tungsten lamp 500W-1k		
3200-3500K	Quartz Lights		
3200-7500K	Fluorescent Lights		
3275K	Tungsten Lamp 2k		
3380K	Tungsten Lamp 5k, 10k		
5000-5400K	Sun: Direct at Noon		
5500-6500K	Daylight (Sun + Sky)		
5500-6500K	Sun: through clouds/haze		
6000-7500K	Sky: Overcast		
6500K	RGB Monitor (White Pt.)		
7000-8000K	Outdoor Shade Areas		
8000-10000K	Sky: Partly Cloudy		

Based on information from the book [digital] Lighting & Rendering
Chart and colors (c)2003 Jeremy Birn for www.3dRender.com

*This graph displays a rough guide To different degrees Kelvin under Different lighting situations.

Exposure

To explain exposure we first have to talk about the camera's iris. The **Iris** of the camera is what decides how much or how little light is allowed into the camera's lens. The diameter (or how open or closed the lens is), is measured by **F-stops**. For example in brightly lit areas the iris is closed down to prevent overexposure. In dimly lit areas the iris is opened to prevent under exposure.

The iris on the DVX100B is controlled by a dial easily located with your left thumb (See image). The F number which tells you what position the iris is in is located on the right part of the viewfinder and LCD screens. As the F-number becomes bigger notice that the image gets darker and vice versa. Hence the larger the F-number the more closed the iris is.

Not only does the iris position effect the exposure of an image but it also affects your Depth of Field.

Depth of field refers to how deep you're able to focus, or how deep of a plane you are able to maintain focus. The more light you have, the more closed your iris is, the larger your focal length. Conversely the less light you have, the more open your iris, the shallower your focal length. By knowing and applying these principles you choose how deep you want your focus to be, not your camera!

Gain artificially brightens your footage at the expense of quality. Only use it when absolutely necessary. The DVX100B has three gain settings L/M/H. No gain is at "L", and that is where you want to keep it set unless you need to brighten the footage.

Zebra patterns are used to identify the bright or reflective parts of the image. The zebra patterns do not affect your video! They are a useful tool for determining exposure level.

To access zebra on the DVX100B open the LCD screen to find the "Zebra" button. When you press this button the words Zebra 1 will appear on the screen. After Zebra 1 you will see a percentage, default is at 80%. This means you will begin to see the zebra pattern when your exposure is at 80% of its limit. Objects at 100% will lose all detail.

DVX100B Tip: Press the zebra button three times or until it says "Marker ON". A small box or marker will appear on the LCD screen. The camera will now display a percentage on screen to the exposure level of whatever you are shooting will be displayed inside the marker box in the center of your viewfinder or LCD screen. This will automatically tell you if you are over or under exposed.

ND Filters

An ND filter is a gray filter that is put over the lens in bright outdoor conditions. When indoor this should be left on the "off" setting. In a bright sunny situation try 1/8 ND first, and if it is still too bright after closing down the iris or, if you prefer a shallower depth of field move it to the 1/64 position to block out more light out. This filter does not effect color, just the amount of light coming into the lens, so there is no need to re-white balance when using an ND filter.



Zebra button



Progressive Vs. Interlaced

To create the illusion of motion inventors of film realized that if it was shot at 24 frames per second (24 still pictures per second) it would look like continuous motion to the human eye. When video came about it was created differently but still used the same concept. The standard video camera shoots 29.97 frames per second and is **Interlaced**, meaning that each frame contains part of another

Scene Files

The DVX100B has six scene files stored in them to give you the ability to quickly adjust to various shooting environments, and allows you to make choices to what will give you the best footage in any particular situation. Understanding them is important as they will affect how the final video turns out. All video cameras used 29.97 frames per second interlaced until this camera was introduced. Scene files F 5 and F 6 are what differentiate this camera from all others.

The Scene Files are as follows

- F1 Scene** Suitable for normal video shooting 29.97 fps and interlaced video.
- F2 Flour** Suitable when shooting indoors under fluorescent light. 29.97 fps interlaced.
- F3 Scene Spark** used when you want subjects to look sharper such as at a wedding.
- F4 Scene B-STR** used when broadening the contrast of dark parts such as a sunset.
- F5 Scene 24p** used for shooting in the 24P progressive mode. (When you want that film look!)
- F6 Scene 24p advanced (60 frames interlaced)** used when shooting in the 24P advanced mode.

Note: When switching scene files to and from progressive and advanced modes, you must stop recording first. You can also change a Scene file to 30p when you want the slightly "filmic" motion of 30p, but don't want to go to 24p, and you aren't concerned about ever going to film. **Consult a Studio Manager before changing the settings of a Scene File.**

How and when should one use these different modes?

Shoot 24p Standard for:

Getting the "film look" on video when you're staying on video and editing at 29.97.

Shoot 30p for:

- Getting true progressive pictures with a 30 fps frame rate, as when pulling stills from video footage. You want the slightly "filmic" motion of 30p, but don't want to go to 24p, and you aren't concerned about ever going to film

Shoot 60i for:

- Anything that you want to use as plain old' video at NTSC frame rates: in 60i, this camera makes pix that look (from a motion-rendering standpoint) just like the pix from any other video camera.

- In other words, use 60i for everything that isn't supposed to "look like film" and doesn't need progressive scan!



Understanding the Shots



Wide or Establishing shot
Abbreviated (WS). An Overall view of the scene, location or subjects.

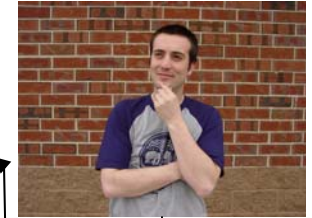
Full length shot
Takes The entire body plus a small space above and below.



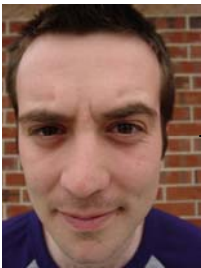
American Shot
Lower part of the subject is cut off just below the knees



Medium Shot (MS)
Subject is shot from the waist up.



Medium Close Up (MCU) or Chest Shot



Close Up (CU)

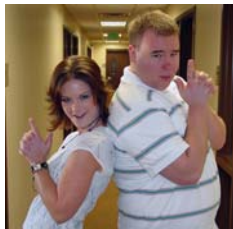
Extreme Close Up.
Only a small part of the subject can be seen.



Shots can also be defined by the number or angle of subjects in the frame.



One Shot



Two Shot



Three Shot



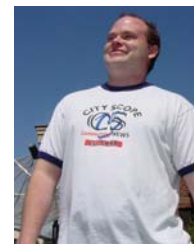
Group or Crowd Shot



Over the shoulder shot
The subject is framed over another subjects shoulder.



High Angle

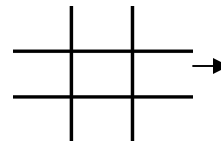


Low Angle

Angles:

All objects have three physical dimensions. These include height, width and depth; together it is referred to as 3-D. In video only two physical dimensions are present, height and width. To create a sense of depth in video one can shoot at an angle. Shooting at an angle allows the viewer to see two sides of the object and creates a sense of depth. Other angles include shooting with the camera aimed down at the subject, which provides a sense of inferiority or shooting with the camera above, which provides a sense of superiority. Shooting a subject from an upward or downward angle changes the subjective presence of the subject and should be approached with caution by journalists.

The rule of thirds is a concept in video and film production in which the frame is divided into nine imaginary sections, as illustrated on the right. This creates reference points which act as guides for framing the image. Points (or lines) of interest should occur at $1/3$ or $2/3$ of the way up, or across the frame, rather than in the centre. Like many rules of framing, this is not always necessary (or desirable) but it is one of those rules you should understand well before you break it.



The Rule of thirds tells us to divide the frame into 9 segments and to put points of interest $1/3$ or $2/3$ of the way up, or across the frame.

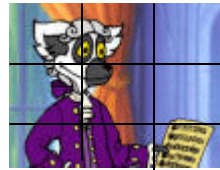
Headroom is the space above the subjects head. Too much and the subject looks to be standing in a hole. Too little and the top of the head is cut off.



Too little headroom



Too much headroom

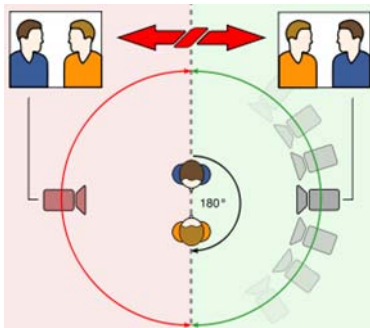


Good Composition.

Subject has leadroom and the focal point (the eyes) is $1/3$ down and the subject is in the left third of the frame.

Leadroom is the space in front of the subject in the direction they are walking or speaking. If you don't have enough it looks as if the subject is talking or walking into a wall.

180 degree rule The **180° rule** is a basic guideline that states that two characters (or other elements) in the same scene should always have the same left/right relationship to each other.



By moving the camera to the other side of the action the two subjects seemed to have switched sides on the TV screen. Be wary of breaking this rule while shooting or you could have difficulty editing. Doing this generally disorients the viewer.

Audio

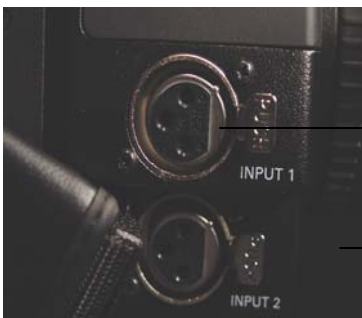
For new producers and crew persons, audio is the main thing that is overlooked. It is as important as the video in most cases and without good audio, the video isn't worth much. This section will give you some valuable tips on how to capture good audio in general, and how to get good audio using the DVX100B.

The DVX100B, is equipped with 2 balanced XLR mic inputs, on screen audio meter, volume controls, and a stereo headphone jack.

Seeing and Hearing

The first mistake that is commonly made is that people don't listen to the sound while keeping an eye on the audio meters. Listening to the audio is essential so that you know that you are getting good quality audio and not feedback. It will allow you to better hear any interference, and will also tell you that you are recording with your intended microphone.

You can record audio through two channels when shooting . You can switch the source between built in microphone, an external microphone, or audio equipment (sound board) connected to the camera.



* Two XLR inputs are located on the right side of the camera.
Mic/Line Switches

Audio levels can be monitored On the bottom left corner Of the LCD or Viewfinder.

Note: when reading the audio meter: bouncing a little into the red is fine, but it shouldn't stay there. If it maxes out in the red the audio will be unusable.



Using the built in microphone.

- Switch the CH 1 SELECT switch to INT (L)
- Switch the CH 2 SELECT switch to INT (R)

Using another microphone

- Connect an external microphone to XLR input. Move CH 1 Select switch to INPUT 1
- INPUT 1: Audio from external mic is attached to input 1, and is recorded on audio channel 1.
- INPUT 2: Audio from external mic is attached to input 2, and is recorded on audio channel 2.



On Camera mic.

CH 1 and CH 2 Select switch.

CH 1 and CH 2 audio Audio control knobs.

* Turn clockwise to increase volume. Turn counterclockwise to decrease volume.

Line Vs Mic

- Use mic, anytime there is a microphone attached to the camera.
- Switch to Line anytime there is a device (i.e. a soundboard) connected to the camera.

*Failure to have the correct setting will give you undesired audio recordings.

Pre-production checklist

Follow these pre-production tips and your taping will go more smoothly—you'll rest easy knowing you're prepared for just about anything! Double-check and confirm everything a few days before the shoot.

OBTAIN TAPING PERMISSION

First things first, do you need permission to tape the event and/or at the location? Call as soon as you can and find out!

INSPECT THE TAPING LOCATION

Inspect the site before your taping date, preferably at the same time of day you will be shooting the “real thing”. While there, check for power outlets, lighting, and special audio needs.

Confirm set-up time, location, etc. Where can you unload and load your equipment? Will all the necessary people be notified of your coming?

LIGHTING

Where will the sun and shadows be during the shoot? Are there windows in the background? Can they be covered?

Fluorescent lights tend to make people look green. Aim a couple lights at a white ceiling or wall to balance the color temperature.

Where will the lighting go? Is there enough power? Is there enough room?

AUDIO

Is there a lot of background noise? Lavalier mics will work best.

Do you need more than one microphone?

If you're using a wireless microphone, pretest it. There may be interference from electrical sources or competing transmitters.

Are you taking a feed out of a sound board? Note the connections.

Do you need a line monitor or program audio going to the talent?

MAKE A SHOT LIST

Bring a list of transition and cover shots. Then, you won't forget a crucial shot.

Shoot more than you think you need—you'll be glad you did!

THINGS TO BRING

Camera equipment

Tapes! Do you need more than one?

Batteries? How many? Will you be able to recharge drained batteries?

Extension cords, extra audio gear, gaffer tape, duct tape.

Lighting, if needed.

Tripod dolly (wheels to get around easily).

Forms! Talent and location releases, parking permits, admittance waivers, etc.

Garbage bag for picking up after yourself (If it starts to drizzle, you can cover most of the camera and still continue taping too!).

Talent release form

Date _____

Program _____

Producer _____

In consideration of your plan to produce the above captioned program and as an inducement to permit me personally to appear on the cablecast of the program, I hereby consent to the use of my name, likeness, pictures and/or voice by you and your licensees for cablecasting, direct exhibition, and subsidiary purposes. Such uses will not be made as will constitute a direct endorsement by me of any product or service.

I hereby idemnify you and your licensees respecting my claim or action against you, your licensees or your officers and agents, arising out of my acts or statements out of the program.

Signature _____ Print name _____

Witness If minor, guardian

Talent release form

Date _____

Program _____

Producer _____

In consideration of your plan to produce the above captioned program and as an inducement to permit me personally to appear on the cablecast of the program, I hereby consent to the use of my name, likeness, pictures and/or voice by you and your licensees for cablecasting, direct exhibition, and subsidiary purposes. Such uses will not be made as will constitute a direct endorsement by me of any product or service.

I hereby idemnify you and your licensees respecting my claim or action against you, your licensees or your officers and agents, arising out of my acts or statements out of the program.

Signature _____ Print name _____

Witness If minor, guardian

Class Assignment

Video	Audio
Shot of Class or individual saying...	(OS)The next person you see on TV could be you!
WS,MS,CU Outside building	(VO) At North Metro TV you can take Free TV classes at our Television studio in Blaine.
WS,MS lobby area or studio	
Shot of person in class holding the camera saying...	(OS)Take classes in portable camera
Shot of person in studio or the control room (i.e. on camera or directing, running audio...) saying...	(OS) Studio Production!
Shot of someone editing on the computer!	(OS) and non-linear editing
WS, MS, CU action shots in control room and studio.	(VO)Use your voice, share your talents, educate your community take our free classes, make your own TV show, and put it on Channel 14!
Shot of TV on channel 14.	
	(OS)What can you do with Free TV classes and equipment?
MCU class member saying....	

WS = Wide Shot
 MS = Medium Shot
 CU = Close UP

VO = Voice Over note: these segments are for sound only, video is not important. Find a quiet place to record those portions.

OS = On Screen Note: These segments the person on camera will be seen saying those portions, hence it is important to have a well composed image, as well as having good audio.