Understanding Camera Specifications Part 1

Reading a Spec Sheet

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Preview

- Objective: Give overview of common camera specifications

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Spec Sheet

COMMON SPECIFICATIONS

GENERAL		
Signal System		NTSC or PAL
Image Device		Sony 1/3" Super HAD CCD
Lens		Vari-Focal Auto IRIS Lens (4~9mm:STD, 2.6~6/9~22/6~50mm : OPT)
Scanning System		525Lines(NTSC), 625Lines(PAL) 2:1 Interlace
Scanning Frequency		(H)15.734KHz(V)59.94Hz(NTSC), (H)15.625KHz(V)50Hz(PAL)
Sync. System		Internal(DC12V)/L.L(External/AC24V) : Auto Switching
S/N Ratio		More Than 48dB(AGC Off)
Video Output Signal		VBS 1.0Vp-p Composite, 75ohm
Electronic Shutter		1/60~100,000(NTSC), 1/50~100,000(PAL)
FUNCTION		
Key Selection	Auto Gain Control	On/Off
	IRIS Shutter Control	A.I/E.E
	Back Light Compensation	On/Off
	Flickerless	On/Off
White Balance		Automatic White Balance(AWB)

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Signal System

- NTSC or PAL
- National Television System Committee
- Analog Television system used in the US, Canada, Japan, Mexico, South Korea, Taiwan, etc.
- Will change to ATSC in US as of February 17th

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Image Device

- Sony 1/3” Super HAD CCD with DSP
- Is the chip size and type
- We use Sony or Pixim chips
- Sony is the #1 CCD chip used in the world

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DSP – Digital Signal Process

- Is a sophisticated chip that will compress and enhance the image
- Increases the quality and the performance of images
- All GSP Cameras have DSP
- Is converted to an analog signal in analog cameras

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Scanning System

- 525 Lines (NTSC) 2:1 Interlaced
- These are vertical lines.
- Has been the standard for almost 50 years for analog TV
- Actual viewable is 480
- New HD is 720p or 1080i
- Pixels can be thought of the same as scan lines

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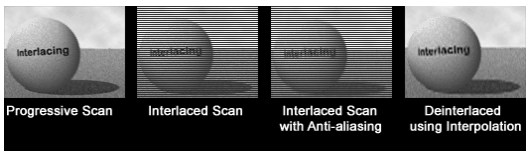
Scanning System

- Progressive vs Interlaced
- GSP Cameras use Interlaced



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Resolution

- 540 TVL
- Total Pixels 410K
- Effective Pixels 768 x 494
- By comparison
- 720 x 480 (520 lines) Standard DVD quality

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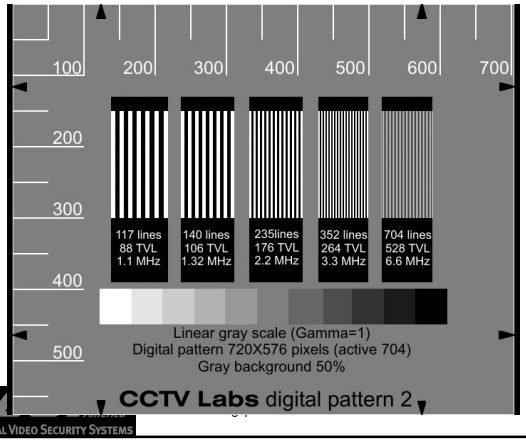


Scanning Frequency

- Horizontal Freq 15.734 kHz
- Vertical Freq 59.94 Hz
- 60 interlaced images per second
- Is same as 30 FPS
- The way the image is handled from an electrical point of view

Sync. System

- Internal (DC12V)
- L.L.(stands for Line lock) (External/AC24V) : Auto Switching
- Eliminates flicker that can be caused if frequencies don't match which can sometimes be seen when switching between cameras

S/N Ratio

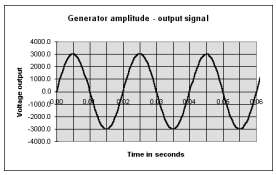
S/N ratio dB	S/N ratio:1	Picture quality
60 dB	1,000	Excellent, no noise apparent
50 dB	316	Good, a small amount of noise but picture quality good.
40dB	100	Reasonable, fine grain or snow in the picture, some fine detail lost.
30 dB	32	Poor picture with a great deal of noise.
20 dB	10	Unusable picture.

SNR

- The higher the dB number the better the picture. Meaning it has less noise.
- Noise can be manifest in graininess, etc.
- WDR cameras are 95 dB typical and 120 dB maximum

Video Output Signal

- VBS 1.0Vp-p Composite, 75ohm
- This is the basic analog signal that is created
- 1 volt peak to peak – is the relationship as represented by the wave pattern of the video in electronic form
- On GSP Full Body camera this can be adjusted for longer cable runs so the end result is 1.0Vp-p



Electronic Shutter

- Video camera shutters work quite differently from still camera shutters, but the result is basically the same. (The technical difference is that, rather than using a mechanical device, the shutter speed is adjusted by electronically varying the amount of time the CCD is allowed to build a charge.

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Electronic Shutter

- Measured in fractions of a second
- 1/60th is the typical option
- Is automatically adjusted to help correct for light levels
- Is normally used when an Auto Iris is not being used. Typically indoors

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Auto Iris

- Automatically adjusts the iris opening on the camera
- Is adjusted to allow the best amount of light in to give a good picture
- Best used outdoors
- Designated with a DC (direct drive) or sometimes with video control

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Review

• Signal System	NTSC
• Scan System	NTSC
• Image Device	Sony 1/3” Super HAD CCD
• DSP	Digital Signal Process
• Resolution	540TVL
• Scan Frequency	Hz
• Sync System	Internal/Line Lock
• S/N Ratio	48dB
• Video Output Signal	1.0Vp-p, 75 Ohm
• Electronic Shutter	EE
• Auto Iris	AI

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Closing

- Part 2 will be in a couple of weeks
- As always any additional questions please email peter@gspamerica.com
- Or visit our blog site at http://gspamerica.blogspot.com

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