

#CAMERA FEATURES

VIDEO FORMAT

VIDEO FORMAT is the recording format of the camera. There are several video formats and you should choose the best suits to your needs and your editing system. Some formats offer perfect picture quality but they have big file sizes and require expensive editing systems. File formats with larger bitrates and 4:2:2 or 4:4:4 chroma subsamplings offer better picture quality.

DV(Intra Frame) 25Mbps - 4:2:0/8bit
HDV(Intra Frame) 25Mbps - 4:2:0/8bit
DVCAM(Intra Frame) 25Mbps - 4:2:0/8bit
DVCPRO25(Intra Frame) 25Mbps - 4:2:0/8bit
DVCPRO50(Intra Frame) 50Mbps - 4:2:2/8bit
DVCPRO100(Intra Frame) 100Mbps - 4:2:2/8bit
HDCAM(MPEG4) 144Mbps - 4:2:0/8bit
HDCAM SR SQ(MPEG4) 440Mbps - 4:2:2/10bit
HDCAM SR HQ(MPEG4) 880Mbps - 4:4:4/10bit

XDCAM SD(MPEG2) 50Mbps - 4:2:2/8bit
XDCAM EX HD(MPEG2 HD MP@HL) 35Mbps - 4:2:0/8bit - MXF files
XDCAM EX 422(MPEG2 HD 422P@HL) 50Mbps - 4:2:2/8bit - MXF files

AVC-Intra 50(Intra Frame) 50Mbps - 4:2:0/8bit - MXF files
AVC-Intra100(Intra Frame) 100Mbps - 4:2:2/10bit - MXF files
AVC-Ultra 200(Intra Frame) 200Mbps - 4:2:2/10bit - MXF files

All Intra 72Mbps(Intra Frame) - 4:2:2/8bit - MOV files
All Intra 91Mbps(Intra Frame) - 4:2:0/8bit - MOV files
All Intra 100Mbps(Intra Frame) - 4:2:2/8bit - MOV files
All Intra 200Mbps(Intra Frame) - 4:2:2/8bit - MOV files

AVC Long G 25Mbps - 4:2:2 10bit - MXF Files
AVC Long G 50Mbps - 4:2:2 10bit - MXF Files

XAVC S(MPEG4/H.264 Long-GOP) 50Mbps- 4:2:0/8bit - MP4 files
XAVC S 4K(MPEG4/H.264 Long-GOP 4K) 60/100/150Mbps- 4:2:0/8bit - MP4 files
XAVC-L HD(MPEG4/H.264 Long-GOP) 50Mbps- 4:2:2/10bit - MXF files
XAVC-L 4K(MPEG4/H.264 Long-GOP 4K) 100/150Mbps- 4:2:2/10bit - MXF files
XAVC-I HD(MPEG4/H.264 Intra Frame) 100/200Mbps- 4:2:2/10bit - MXF files
XAVC-I 4K(MPEG4/H.264 Intra Frame 4K) 300/600Mbps- 4:2:2/10bit - MXF files

JVC H.264 XHQ 50Mbps - 4:2:0/10bit - MOV Files
JVC 4K H.264 144Mbps(36Mbps x4) - 4:2:0/8bit - MP4 files

Apple ProRes 422 Proxy(Intra Frame) 45Mbps - 4:2:2/10bit - MOV files
Apple ProRes 422(Intra Frame) 145Mbps - 4:2:2/10bit - MOV files
Apple ProRes 422 HQ(Intra Frame) 220Mbps - 4:2:2/10bit - MOV files
Apple ProRes 422 HQ(4K) 880Mbps - 4:2:2/10bit - MOV files
Apple ProRes 4444(Intra Frame) 330Mbps - 4:4:4/12bit - MOV files
Apple ProRes 4444 4K(Intra Frame) 1.32Gbps - 4:4:4/12bit - MOV files
Apple ProRes 4444XQ HD(Intra Frame) 500Mbps - 4:4:4/12bit - MOV files
Apple ProRes 4444XQ 4K(Intra Frame) 2.0Gbps - 4:4:4/12bit - MOV files

Avid DNxHD 145Mbps - 4:2:2 8bit - MXF files
Avid DNxHD 220Mbps - 4:2:2 10bit - MXF files

CinemaDNG (RAW) up to 880Mbps - 12bit linear - DNG files
CinemaDNG (RAW) 4K up to 2.12Gbps - 12bit linear - DNG files
CinemaDNG (RAW) 4.6K up to 1.44Gbps - 12bit linear - DNG files

AVCHD(MPEG4/H.264) up to 24Mbps - 4:2:0/8bit - M2TS files
AVCHD 2.0(MPEG4/H.264) up to 28Mbps - 4:2:0/8bit - M2TS files

MPEG4/H.264 up to 28Mbps - 4:2:0/8bit - MP4 files
MPEG4/H.264 up to 50Mbps - 4:2:2/8bit - MOV files
MPEG4/H.264 up to 150Mbps (4K/HD) - 4:2:0/8bit - MOV/MP4 files

ARRIRAW up to 3.3Gbps - 12bit linear - ARRI files
DPX Uncompressed 10bit/12bit (HD/2K) up to 3.7Gbps - 4:4:4 - DPX files
REDCODE 5K up to 5.5Gbps - 16bit linear - R3D files
Cinema RAW for Canon C500 (HD/2K/4K) up to 5.3Gbps - RMF files

CHROMA SUBSAMPLING

4:4:4 > Each of the three Y'CbCr components have the same sample rate, thus there is no chroma subsampling. This scheme is used in cinema productions.
4:2:2 >The two chroma components are sampled at half the sample rate of luma: the horizontal chroma resolution is halved.
4:2:0 >The horizontal and vertical color resolutions are halved.

RESOLUTIONS

VIDEO RESOLUTION is the size of the picture. SD, HD, 2K, 3K, 4K, 5K, 8K. The larger the resolution the better picture quality.

SD 480i NTSC 720x480pixels
SD 576i PAL 720x576pixels

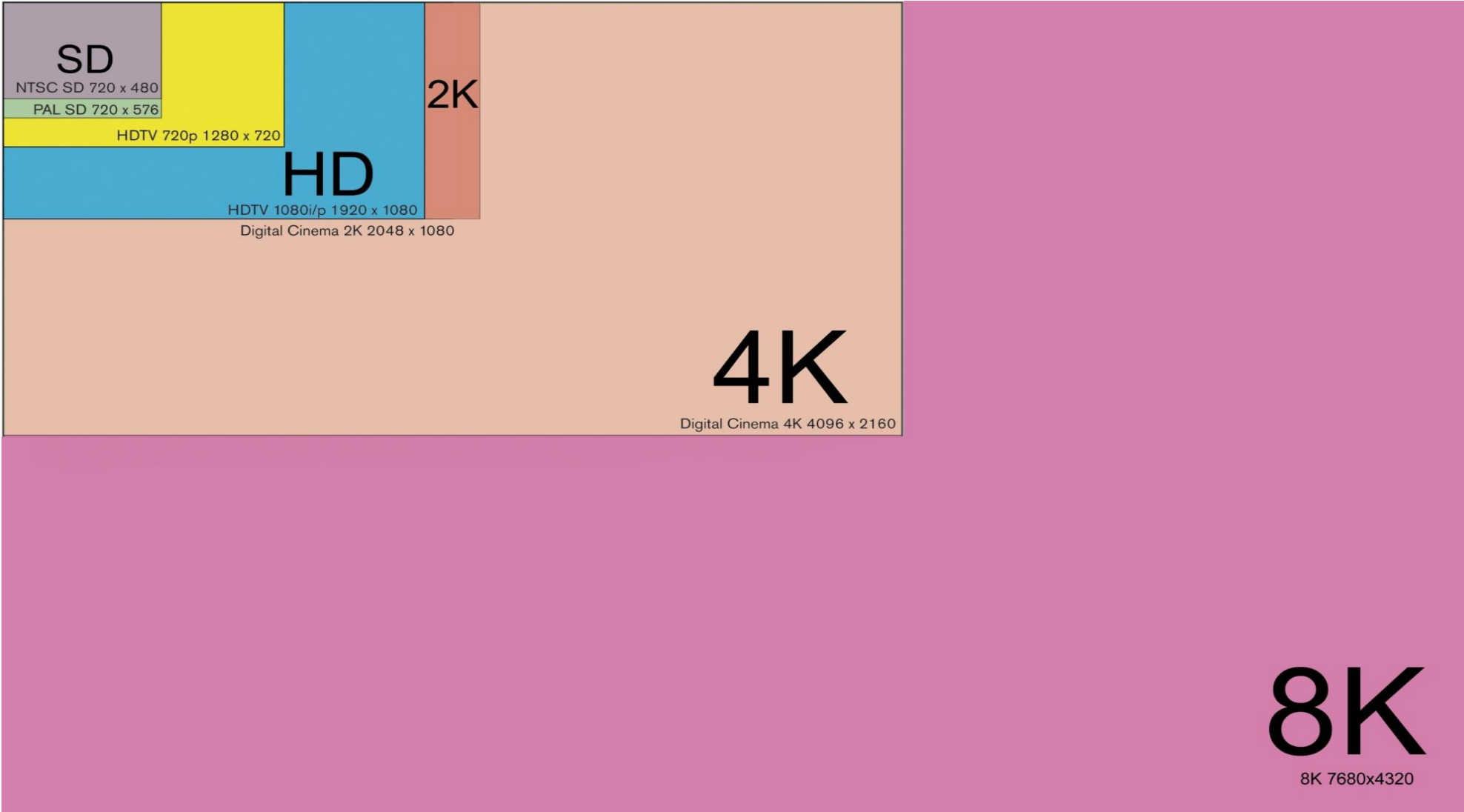
HD 720: 1280x720pixels(16:9 aspect ratio)
HD 960: 1280x960pixels (4:3 aspect ratio)
HD 1080: 1440x1080pixels(4:3 aspect ratio)
HD 1080: 1920x1080pixels(16:9 aspect ratio)
HD 1440: 1920 x 1440pixels (4:3 aspect ratio)

2K: 2048 x 858pixels(6:5 aspect ratio)
2K: 2048 x 1080pixels(1.89 aspect ratio)
2K: 2048 x 1152pixels(16:9 aspect ratio)
2.5K: 2432 x 1366pixels(16:9 aspect ratio)
2.7K: 2704 x 2028pixels(4:3 aspect ratio)
2.7K: 2704 x 1520pixels(16:9 aspect ratio)
2.8K: 2880 x 1620pixels(16:9 aspect ratio)

3.2K: 3200 x 1800pixels(16:9 aspect ratio)

4K UHD: 3840 x 2160pixels(16:9 aspect ratio)
4K: 4000 x 2160pixels(1.85 aspect ratio)
4K: 4096 x 2160pixels(1.89 aspect ratio)
4K: 4096 x 2304pixels(16:9 aspect ratio)
4K: 4608 x 1920pixels(2.4 aspect ratio)
4.6K: 4608 x 2592pixels(16:9 aspect ratio)

5K: 5120 x 2700pixels (1.89 aspect ratio)
8K: 7680 x 4320pixels (16:9 aspect ratio)



SD

NTSC SD 720 x 480

PAL SD 720 x 576

HDTV 720p 1280 x 720

HD

HDTV 1080i/p 1920 x 1080

Digital Cinema 2K 2048 x 1080

2K

4K

Digital Cinema 4K 4096 x 2160

8K

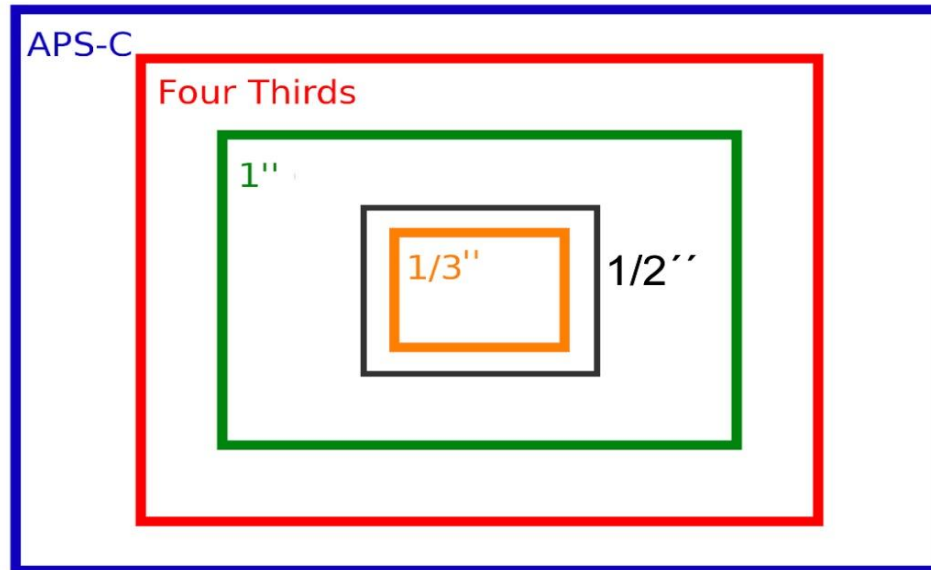
8K 7680x4320

SENSOR SIZES

SENSOR SIZE is the size of the sensor of your camera. The bigger the sensor the better picture quality. Cameras with larger sensors are usually more light sensitive.

Type	1/4"	1/3"	1/2"	2/3"	Super 16	1"	Blackmagic	4/3"	APS-C	DX	Super 35	Phantom	RED	APS-H	Full Frame	P65+
Width	3.20mm	4.80mm	6.40mm	8.80mm	12.52mm	12.8mm	15.81mm	17.3mm	22.2mm	23.6mm	24.9mm	25.6mm	27.7mm	28.7mm	36mm	53.9mm
Height	2.40mm	3.60mm	4.80mm	6.60mm	7.41mm	9.6mm	8.88mm	13mm	14.8mm	15.5mm	14mm	25.6mm	14.6mm	19.1mm	24mm	40.4mm
Crop Factor	10.83	7.21	5.41	3.93	2.97	2.70	2.38	2	1.62	1.52	1.51	1.19	1.38	1.26	1	0.64
Cameras	AG-AC90	GY-HM600	PMW-200	AG-HPX600	ArriFlex 416	HXR-NX100	Cinema	GH4	7D	D7000	NEX-FS700	HD Gold	RED Epic	1D	5D	P65+

Full frame (36mm x 24mm)



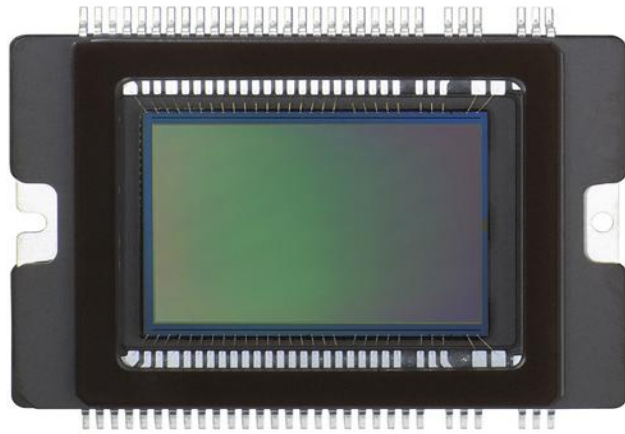
SENSOR TYPE

SENSOR TYPE is the type of the sensor of the camera. CCD or CMOS. Both types are good but CMOS is most commonly used. Cameras with 3CMOS or 3CCD have better picture quality than cameras with one CMOS or CCD.

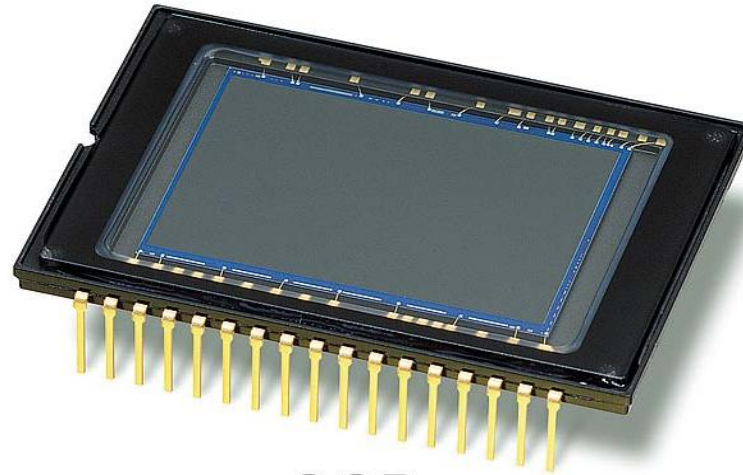
Today, most digital still cameras use a CMOS sensor because CMOS sensor technology in recent years has leapfrogged CCDs.

The biggest advantage of a CMOS sensor is that it is typically less expensive than a CCD sensor. Also consumes less power than CCDs, have less image lag and require less specialized manufacturing facilities. A CMOS camera also has weaker blooming effects if a light source has overloaded the sensitivity of the sensor, causing the sensor to bleed the light source onto other pixels.

On the other hand, since a CMOS video sensor typically captures a row at a time within approximately 1/60th or 1/50th of a second (depending on refresh rate) it may result in a "rolling shutter" effect, where the image is skewed (tilted to the left or right, depending on the direction of camera or subject movement). For example, when tracking a car moving at high speed, the car will not be distorted but the background will appear to be tilted. A frame-transfer CCD sensor does not have this problem, instead capturing the entire image at once into a frame store.



CMOS



CCD

LENS TYPE

LENS TYPE is the lens mount of cameras with interchangeable lens system. There are many Lens types: Canon EF, Nikon F, Sony E, Panasonic MFT 4/3", 1/3" Bayonet, 1/2" Bayonet, 2/3" Bayonet, PL, Olympus Mount, Sony FZ Mount e.t.c.

REC-MEDIA

REC-MEDIA is the media that your camera uses to record your pictures. Medias that can storage videos with large bitrates are more expensive. Commonly used medias are the following: Tapes, SD/SD-HC/SD-XC cards, CF Cards, Cfast Cards, XQD Cards, P2 Cards, SxS Cards and SSDs.



SLOW MOTION

SLOW MOTION is an effect in film-making whereby time appears to be slowed down. Typically this style is achieved when each film frame is captured at a rate much faster than it will be played back. When replayed at normal speed, time appears to be moving more slowly. In that way you can easily capture the movement of a bullet after a gun shot. Slow motion can be achieved when the camera can capture at a faster rate than normal (24fps). This technique is called overcranking. Cameras which can record video at more than 50fps are called slow motion cameras. Usually, slow motion cameras can record video at 120fps or 240fps in Full HD, 2K or 4K picture quality. Some expensive slow motion cameras can record videos at 1500fps in HD quality.

QUICK MOTION - TIME LAPSE:

TIME LAPSE is a technique whereby the frequency at which film frames are captured (the frame rate) is much lower than that used to view the sequence. When played at normal speed, time appears to be moving faster and thus lapsing. In that way you can capture clouds or people moving really fast. Time lapse can be achieved by capturing sequential photos or low frame rate video. So if you capture 2 photos per second or a video with 2fps frame rate you will get the same timelapse video if you play it with the same speed (example 25fps).

MINIMUM ILLUMINATION

MINIMUM ILLUMINATION is a way to measure the sensitivity of a camera. In another word, how dark the camera can still see usable image. Min.Illumination is usually measured with highest ISO value and Iris wide open. Cameras with less than 1LUX Min. Illumination can capture good in dark enviroments.

VIDEO OUTPUTS:

VIDEO OUTPUT is the type of the video connector of the camera. BNC(for CVBS, Component, SDI), HDMI, Mini HDMI, Micro HDMI, RCA and Jack.



BNC



HDMI



RCA



mini-HDMI



micro-HDMI



JACK to RCA

LIVE STREAMING:

LIVE STREAMING refers to content delivered live over the Internet and requires a form of source media (e.g. a video camera, an audio interface, screen capture software), an encoder to digitize the content, a media publisher, and a content delivery network to distribute and deliver the content. Cameras with Live streaming Feature have a USB host for 3G/4G sticks and WiFi or Ethernet adapters. So, live streaming cameras can stream through the internet or through 3G/4G network. This new feature is really useful for TV stations for news gathering.

#MONITOR FEATURES

PANEL RESOLUTION is the Resolution of the Panel of the monitor. Full HD 1920x1080pixels resolution is a good resolution for small portable Monitors. There are also bigger monitors with 5K or 4K Panel resolutions for high quality 4K video preview.

INPUT RESOLUTION is the Resolution of the Video input of the Monitor. This resolution is not the same with the Panel Resolution. Full HD 1920x1080pixels is a good input resolution for small portable Monitors. There are also bigger monitors with 5K or 4K input resolutions for high quality 4K video preview.

FRAME RATES SUPPORTED are the Frame Rates of the Video input that are supported from the monitor. 25fps or 30fps are common frame rates that are supported from most of the monitors in the market. More expensive monitors support also 50fps or 60fps.

VIDEO INPUTS are the type of the video connectors of the monitor. There are several connectors: BNC(for CVBS, Component, SDI, HD-SDI, 3G/HD/SD-SDI), HDMI and RCA(for CVBS or Component)

BRIGHTNESS & CONTRAST are the most important features of the monitors. When Monitors have good contrast and brightness you can easily work outside in daylight with no viewing problems. Monitors with more than 500nits brightness considered to be really bright monitors and are suitable for Steadycam operators for outside shootings.

EXTRA MONITOR FEATURES: Waveform, Vectorscope, Histogram, Focus Assist, Zebra, Peaking, Zoom, False Color, Blue only, Image flip, DSLR Scale, Pixel to Pixel, Overlay, Guides, 3D LUT Support, RGB Parade, YUV Parade, Audio Meters, Cross Conversion, PIP, Timecode display.

#LIGHT FEATURES

LIGHT TYPE is the type of the Light: LED, Tungsten, Spot, Fresnel, TTL, HMI, Flash or Fluorescent Light.

COLOR TEMPERATURE is the color temperature of the Light. 3200K is the common warm temperature and 5600K is the common daylight temperature in the Film industry. Good Quality lights are close to these temperatures. Some low cost LED lights emit wrong temperature beams which gives bad picture quality to your shootings.

BRIGHTNESS is the most important feature of the lights. Brightness is calculated according to the distance of the light to the object. So, a light which has 800LUX brightness @1m distance is more powerful than a light which has 900LUX brightness @50cm distance. This is a common problem when we are trying to compare brightness of the lights. Also be aware that some lights are more bright because the beam angle is smaller. So, a light with 45degrees beam angle is more powerful than the same light with 60degrees beam angle.

CRI is a very important number which shows the quality of a Light. A color rendering index (CRI) is a quantitative measure of the ability of a light source to reveal the colors of various objects faithfully in comparison with an ideal or natural light source. Lights with more than CRI 90 are acceptable in Film Productions.

