

# TECHNOLOGY APPLICATION GUIDE

## Video Surveillance – Resolution



### > WHAT IS IT?

Resolution is the degree of sharpness of an image as measured by the number of pixels across and down on a display screen.

#### • SD (Standard Definition)

- Commonly referred to as SDTV, 640x480, 480i, 480p, VGA, 704x480, 720x480, D1, SMPTE 293M
- In Europe, commonly referred to as EDTV, 576i, 576p, 720x576
- Aspect ratio 4:3

#### • HD (High Definition)

- Commonly referred to as 720p, 1080p, 1080i
- Color fidelity is based on SMPTE standard
- Aspect ratio 16:9
- Frame rate 30 fps

#### • Megapixel

- Commonly referred to by the number of pixels the camera can display
- Color fidelity is not standards based
- Aspect ratio may vary
- Frame rates vary by camera

#### • UHD (Ultra High Definition)

- Commonly referred to as 4K, 8K, 2160p, 4320p
- Color fidelity is based on SMPTE standard
- Aspect ratio 16:9
- Frame rate 30 fps

### > WHY IS IT IMPORTANT?

Accurately identifying the resolution required for a viewing area ensures:

- The level of detail that is needed is captured
- Managed storage costs
- Network stability

**Not enough** resolution can lead to missing details in an image. That loss can result in multiple forms of risk including the inability to use the video for forensics or loss of revenue when used for process or quality monitoring.

**Too much** resolution can result in increased storage costs, negatively impact network bandwidth and other areas of the video infrastructure.

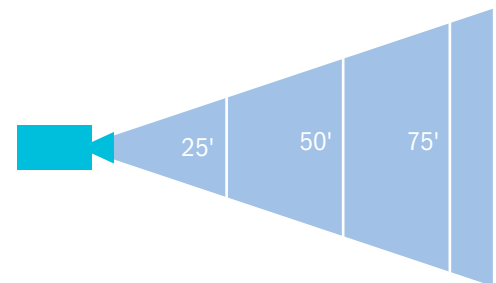
### Best Practices When Choosing a Camera for a Particular Application

For all resolutions and applications, it is important to know the typical day-to-day environment where the camera will be located, as well as any extreme environments it may encounter, such as lighting and motion conditions or changes that may impact the required performance. By knowing the focal length of the lens and the distance between the point of interest and the camera, calculate the pixels per foot to maximize the resolution.

	General Surveillance	Forensics	Analytics
<b>Resolution</b>	Up to 20 pixels per foot	Approximately 40 pixels per foot	Typical minimum will be 80 pixels per foot
SD	Can be used anywhere The further the point of interest is from the camera, the less ability to identify details of the image	Small offices and vestibules, elevators Roughly 10' x 10' areas	Common in process control lines that are watching general flow through the line
Megapixel	Can be used anywhere The further the point of interest is from the camera, the less ability to identify details of the image	Common in large areas with adequate lighting Reduced lighting levels can cause noise on the imager chip which will create additional bandwidth usage	Common in process control lines that are watching specific details such as whether blades cut vs. tear product, or whether solder welds are clean
HD	Common in outdoor areas with adequate lighting Reduced lighting levels can cause noise on the imager chip which will create additional bandwidth usage	720p and 1080p are most common for indoor applications	Common in process control lines that are watching specific details where color is a factor for product quality Seen in LPR and facial recognition
UHD	Will be used in large auditoriums and exterior applications for collecting an overall perspective Lighting quality is critical	Can provide details that the human eye would not be able to see at some distances Lighting quality is critical	In development High-detail environments will be supported Lighting quality is critical

Focal Length 8mm, 1/3" Sensor			
Point of Interest	25'	50'	75'
Field of View	15'	30'	45'
SD	42.7ppf	21.3ppf	14.2ppf
720p	48ppf	24ppf	16ppf
1080p	72ppf	36ppf	24ppf
5MP	172.8ppf	86.4ppf	57.6ppf

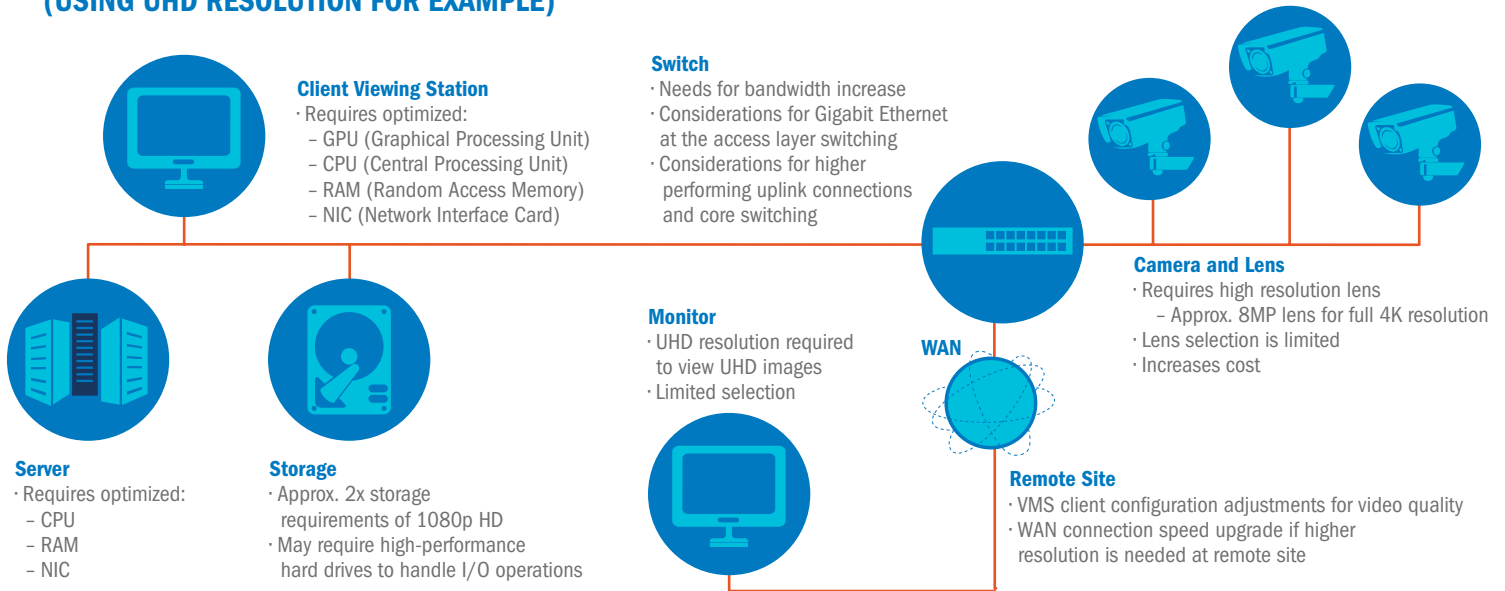
Focal Length 20mm, 1/3" Sensor			
Point of Interest	25'	50'	75'
Field of View	6'	12'	18'
SD	106.7ppf	53.3ppf	35.5ppf
720p	120ppf	60ppf	40ppf
1080p	180ppf	90ppf	60ppf
5MP	432ppf	216ppf	144ppf



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### > VIDEO INFRASTRUCTURE CONSIDERATIONS AS RESOLUTION INCREASES (USING UHD RESOLUTION FOR EXAMPLE)



### > WHY ANIXTER?

- With a technical sales force and experts in our Technology Support Services team we are devoted to cabling and security solutions.
- The broadest infrastructure offerings to fit your current and future industrial communication and control, network cabling, security application, data center and enterprise cabling needs.
- Our footprint supports our customers' and suppliers' operations around the globe.



### > LIST OF APPLICABLE INDUSTRY STANDARDS

- SMTPE 296M: 720p
- SMTPE 274M: 1080p
- SMTPE 2036-1: 4K
- SMTPE 2036-2: 8K

#### Technical Expertise

PARTICIPATION ON STANDARDS AND INDUSTRY COMMITTEES

ASIS  
SIA  
ONVIF  
ESA  
BICSI

- > INFRASTRUCTURE SOLUTIONS LAB<sup>SM</sup>
- > SOLUTIONS BRIEFING CENTERS
- > TECHNICAL SOLUTIONS GROUP



### Technology Alliance Partners<sup>SM</sup>



Anixter's Technology Alliance Partners provide solutions designed to connect the world's most important systems. Our partners help organizations operate more efficiently and securely, while maximizing value.

> **Is Your Video Infrastructure Prepared To Handle Higher Resolution Images? Contact your local Anixter sales rep or visit [anixter.com/security](http://anixter.com/security) to determine the right solution for your needs.**

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