

# HD surveillance for casinos



# The casino industry is set to begin its migration to IP in the coming years.

Advancements in picture quality, the ability to cope in very low lighting and improvements in image analytics are the key driving forces.

Casinos are a unique market vertical incorporating many of the challenges present in other market verticals. They often operate for extended periods of time (some without closing at all) and need to ensure security while maintaining a fun and inviting atmosphere for customers.

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## Objectives of Migrating

When making the shift from an analogue solution to an IP solution you often need to make your case as to what will improve. For the casino market there are some key benefits you can realise both for observational and back of house operations:

- Improved Picture Quality and Greater Sensitivity in Low Lighting
- Greater Frame Rates to For Post Recording Analysis
- Wider Field of View and Less Cameras
- High Quality Audio Capture
- Remote or Mobile Viewing
- Simpler Control Room Operations for Locating and Playback of Video
- Automatic recognition of premier customers or people on security watch lists.

## What are You Protecting?

Casinos are made up of a number of diverse environments all presenting different challenges for the installer and the end-user alike. Most areas are geared up to working almost 24/7 with a large number of gamblers and staff flowing through the venue.

- Gaming floor
- Cash office
- Cash desk
- Staff break areas and locker rooms
- Car park
- Back office areas
- Emergency exits
- Restaurants, bars and lounges
- Loading bays/bins
- External perimeters
- Reception
- Staff entrances and exits.

## Improved Picture Quality

Casinos can often suffer from customers placing illegal bets or performing sleight of hand actions resulting in fraud against the venue. While the croupier is trained to pick up on these activities and the floor managers are there to assist in this detection and act as a deterrent, a casino's surveillance system is there as an additional set of eyes which can resolve a dispute arising over a bet.

There are a number of different types of fraud a surveillance system can detect. Illegal moves such as swapping cards during a game, late bets or a player placing additional chips on the table after the roulette ball dropped can now be monitored under strict supervision. Most of the time this would cause a dispute where the casino cannot close the table whilst the evidence is being found. Locating the clip quickly and easily is key to the smooth running of the gambling floor.

When the security room operators have located the clip, the quality of the image captured can be crucial in reducing the fraud impact on the casino. It also allows the casino to make sure that the correct customer is paid the correct number of chips for their win.



Here we see the Full HD image captured by one of the Sony 6th Generation cameras. When you digitally zoom on the far end of the table you have far more detail than any analogue camera could ever offer. The level of resolution is sufficient to make out the numbers on the table, the position of the chips and the ability to accurately see the number of chips in play on the table. What's more you can accurately make out the colours of the chips each player is playing with.

## Greater Sensitivity in Low Lighting

Casinos are among the many businesses and organisations that have begun to switch the lighting in their venue to LED or other low powered lighting solutions. Combine this with the different mood lighting and backlighting, and it presents a difficult environment for a surveillance camera to operate in.

One of the most notable problems surveillance teams face is poor lighting conditions. Further problems can arise from this such as poor colour reproduction. This can make it difficult to identify the colours of chips in play or even the value of cards being dealt. What's more, with strong backlighting from gaming machines, digital signage or neon lights around the venue, images can become very dark and shaded. This impairs the operator's ability to make out enough detail in the scene.

Sony has a number of key technologies to compensate for these types of lighting issues, all too common in casinos.

The first is the Sony Exmor sensor – designed with extreme sensitivity in mind. Combining the ability to capture images at a high frame rate with different exposure settings brings exceptional clarity to high contrast scenes and strong lighting situations.

The second technology found on our G6 cameras is the IPELA Engine – designed to process the images captured by the sensor to improve the image quality. It does this by applying 2D and 3D noise reduction algorithms, making XDNR perfect for scenes where you have both moving and static objects in a low light environment.



Typical Analogue Camera



Sony Full HD 6th Generation IP Camera

The IPELA Engine also features View-DR, which utilises the 120 pictures captured per second and combines these multiple images to compensate for high contrast areas. The IPELA Engine then uses a Visibility Enhancer as the third process to enhance the image further, correcting colour tones and brightness. This can then be encoded at 60 frames per second and then streamed over the network.

## Greater Frame Rates for Post Recording Analysis

The surveillance solution within a casino is often looking at fast-moving action where sleight of hand fraud is likely to take place in an effort to cheat the house. Introducing cameras with high frame rate capture and encoding will really help to detect this. Areas of constant motion such as the roulette table will appear much smoother, making it easier for an operator to constantly view.

However, the main benefit will be the extra detail that you can record for post-analysis. Many suspected acts of fraud will be picked up but the gambling floor staff can now confidently confirm their suspicions. With sleight of hand acts getting quicker, Sony's G6 cameras are able to double the number of frames per second from 30 to 60 – this means you'll be able to see everything that happens frame by frame.

## Wider Field of View and Less Cameras

Many of the current installations within casinos use analogue cameras. These give a 4:3 aspect ratio which is quite limited when trying to view a table, the people at it and the croupier or dealer. Using HD cameras with a 16:9 aspect ratio will allow for a much greater field of view.

This will allow the casino security room operators to view or review how a dealer interacted with the gamblers to show if any collusion took place between a staff member or another gambler at the table.



4:3 field of view



Full HD 16:9 field of view

## High Quality Audio Capture

Another means for casinos to detect collusion between staff or fellow gamblers, or even to ensure the member of staff is adhering to the rules of the house, is to use audio. In many casinos the tables are fitted with a microphone which needs to be cabled back to the recording solution.

With the introduction of Sony's Generation 6 cameras you can now encode audio in near CD quality using AAC 48Khz. Combine this with a recording solution from either Milestone, Genetec or NICE and you will be able to have this audio lip-synced with the video.

## Remote or Mobile Viewing

As broadband speeds continue to increase, we now have the ability to stream HD video back to head office or other casinos. This means intelligence can be easily shared to help catch fraudsters, e.g. people who have been banned from other casinos. The benefit of this is that someone at head office can dial in and help review the incident for a quick resolution.

Mobile and tablet connectivity for video surveillance is another possibility. Working with recording solutions such as Milestone or NetAvis, you can use a tablet device to connect to the recording solution – all you need is a wireless network set up inside the casino. This means security staff will be able to access live surveillance without being in the control room. Again, this could help to improve a casino's ability to efficiently resolve disputes with gamblers.

The security control room within a casino can be a busy place. Floor security and casino management staff rely on them to deliver a rapid ruling on a dispute or details on an incident that may have taken place. Smooth operations within the control room and on the casino's gambling floors rely heavily on staff training.

If a dispute takes place it may take some time before the message to start searching for the video evidence gets to the control room. And if the exact time of the dispute is not known, the operator will need to cross-reference the name of the table to an ID number for the relevant camera. Both of these factors will then impact on the time it takes to locate the video evidence.

Modern IP surveillance solutions may help this. By changing the graphical user interface (GUI) of the recording solution you can display a layout of the casino's floor plan with all the cameras shown in their actual positions. Once you have located the camera using features like "Playback from Live" to instantly rewind the recorded video, you will easily be able find the dispute or incident.



RealShot Manager  
Advanced and  
Layouts with  
Graphical Floor  
Plan Views

Finding ways to automatically tag a video for quick retrieval would also be a huge benefit. Currently, when the dealer is made aware of a dispute, they will signal to security that there is an issue by waving a card over the table. This acts as a visual marker to give the control room staff a point to work back from.

This method still relies on the operator finding the correct camera and then quickly rewinding back into the video to locate the event they are looking for. An alternative would be for the operator to have a button on the table which feeds back to the cameras I/O port. When a dispute happens the floor staff could push that button to automatically tag the video making the control room staff. As long as you are working with pre and post alarm recordings this could really speed up retrieval time by simply double clicking on the alarm history list.



RealShot Manager  
Advanced and  
Alarm History

Finally, presenting a simple user interface capable of displaying up to 9 recordings simultaneously, makes post-event analysis from multiple cameras possible. This saves time as exporting lots of unneeded video footage can take a while. This is also ideal for areas where you have multiple cameras covering the same area from different angles.



RealShot Manager  
Advanced and  
Simultaneous  
Playbacks

There is growing interest in face recognition. Whilst most levels of accuracy are fairly low, the move to HD/IP surveillance is certainly helping make this technology a reality. Within the casino trade face recognition has two key placements. The first is in recognising banned customers who are not welcome.

The second is in identifying the high rollers who need to be made to feel valued from the moment they walk in. Making the move to IP cameras that feature Full HD resolution, excellent sensitivity and sophisticated backlight compensation (while being ONVIF compliant) is guaranteed to be a good investment.

## Conclusion

**There is no doubt that casinos are going to make the move to IP surveillance in the coming years. The benefits of Full HD/IP surveillance are far surpassing that of analogue or standard definition IP cameras of the past.**

Full HD PTZ cameras are getting higher and higher zoom ratios meaning they're perfect for deploying fewer cameras while covering a wider field of view. Advancements in 360 lens and de-morphing software are also making huge strides to reduce the number of cameras needing to be installed while covering the same area size.

The biggest limitation may be the complexity of the migration. Perhaps some installs would benefit from installing the IPELA Hybrid camera. This utilises existing coax cabling to make the migration quick, simple and cost-effective.

There are many different recording solutions in the market. Many are designed with mobile, desktop and remote applications in mind. The graphical user interface can be simple or complex and often tailored to the end users requirements that help streamline your control room operations. Sony works with over 1250 software partners worldwide as well as producing its own recording solution. Spend some time evaluating these packages to see how they can bring significant improvements to both your front and back of house surveillance operations

Casinos have many unique challenges. Finding the best camera, the best recording solutions and the best analytics package are all things that shouldn't be rushed into.

Firstly, take the time to do a good site survey, work out the challenges of your proposed camera locations and select your camera models. Once you've done this, work out the features you need from your recording and analytics package. Then begin your install.

**Sony Professional Solutions Europe is the leading supplier of AV/IT solutions to businesses across a wide variety of business sectors, including video security, media and broadcast, sports, healthcare and digital cinema.**

It delivers products, systems and services that enable the creation, manipulation and distribution of digital audiovisual content that add value to businesses and their customers. With over 30 years' experience in delivering innovative market-leading AV/IT solutions, Sony collaborates with a wide network of established technology partners to deliver end to end solutions that meet its clients' business goals.

As recognised experts in video security, Sony creates some of the industry's most technically advanced, network based, end-to-end solutions. Sony video security innovations include View-DR, 360° lens, IR illuminators with Advanced IR and Advanced Audio Detection.

For more information on how Sony video security solutions can benefit your business, please visit [www.pro.sony.eu/G6](http://www.pro.sony.eu/G6)