

## PIXIM REVIEW

# Gaming Security

## Pixim-Powered Cameras Are the Real Winners for Casinos

Gaming tables at casinos worldwide do everything in their power to thwart cheating, whether it's by customers or employees. Casinos today also face increased scrutiny from a number of regulatory agencies, which expect both compliance with their regulations and proof of the casinos' security capabilities. In addition, gaming commissions require casinos to provide video evidence to settle disputes over payouts. To be effective in casinos, security cameras must capture details – of people, gaming tables, and surroundings – regardless of the lighting and even when the images are magnified.

Common security camera problems that gaming establishments encounter:

- › Inadequate color reproduction, including inability to distinguish red vs. black playing cards
- › Lack of detail in facial features, cards, chips, roulette wheels, etc.
- › Unnatural skin tones of gamblers and casino employees
- › Poor white balance, making it difficult to identify cards, especially when illuminated by halogen, fluorescent, neon, or argon lights
- › Poor clarity of images with glare or other high-contrast lighting situations
- › Poor resolution and signal-to-noise ratio (SNR) in zoom modes

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### At-A-Glance:

Pixim Digital Pixel System<sup>®</sup> (DPS) Technology

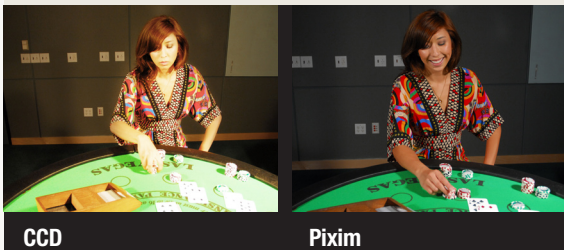
- › Widest Dynamic Range (WDR): Captures up to 1024 times more data (dynamic range) than standard CCD cameras
- › Signal-to-noise ratio (SNR): >50 dB (max)
- › Sensitivity: <0.5 lux (CMY) minimum illumination f/1.2, 50 IRE
- › Resolution: 540 horizontal TV lines (HTVL) equivalent



## Pixim-Powered Cameras Are the Real Winners for Casinos [continued]

Pixim's Digital Pixel System® (DPS) ultra-wide dynamic range technology, a true breakthrough in imaging technology, delivers unprecedented image quality in all lighting conditions. Cameras powered by Pixim's specialized image processing chipsets can significantly enhance casino security through the following capabilities:

- › **Widest dynamic range:** Captures highlight and shadow detail – including faces, hands, cards, and roulette wheels – in the same scene.
- › **Highest total resolution:** Makes it easy to distinguish image features and details, even at high magnification or zoom.
- › **Superior color rendering:** Accurately displays colors of cards, roulette wheels, chips, and skin tones even in difficult lighting such as glare, low light, high-contrast scenes, and neon or halogen lighting.
- › **High image compression:** Improves image quality with smaller file size – allowing Digital Video Recorders (DVRs) to record with higher frame rate or higher resolution, or both, while maintaining the same total recording time.



- |                    |                          |
|--------------------|--------------------------|
| › Pixel saturation | › Accurate white balance |
| › Unnatural color  | › Natural color          |

Security cameras based on Pixim technology enable casinos to capture details of people and activities in high resolution and accurate color, even in variable and challenging lighting conditions and with zoom functions. As a result, casinos are better equipped to detect cheating, from both sides of the table.

Today, it's not uncommon for major Las Vegas casinos to have as many as 3,000 security cameras trained on their gaming operations, monitored around the clock by security officers.



1395 Charleston Road  
Mountain View  
CA 94043

P: 650 934.0550  
F: 650 934.0560

[www.pixim.com](http://www.pixim.com)



THE REEF  
HOTEL CASINO  
GOLD COAST AUSTRALIA