

PIXIM REVIEW

Financial Services

Are You Capturing the Details?

Bank robbers are nothing new, but their tactics have evolved considerably from the heists made popular in Wild West movies. In response, financial services institutions have had to modernize their strategies for

combating theft. One of the most widely used tools is a security camera.

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Pixim-Powered Cameras Overcome Challenges

Financial services institutions such as banks, credit unions, and savings and loan associations are considered among the most secure institutions, yet they constantly face risk of theft, both from external sources and from within. In addition to their own interest in apprehending thieves, financial services institutions also are required to meet FBI guidelines for security, which include making available high-quality video surveillance recordings covering 10 days prior to a robbery. To provide

sufficient recording time as well as high-resolution/high-frame-rate images, financial institutions must deploy high-capacity Digital Video Recorders (DVRs), which add significantly to the total cost of their security systems. In addition, the variability of physical layout from one branch to another, and of light throughout the day, makes it difficult to achieve consistent video image quality without frequent adjustments to camera settings.

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At-A-Glance:

Pixim Digital Pixel System[®] (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



Are You Capturing the Details? [continued]

Ideally, cameras should be able to capture clear images of people and activities in and around a bank, savings and loan association, brokerage firm, or credit union building. In the real world, however, traditional CCD-based security cameras are unable to handle high-contrast or uncontrolled lighting, so they often have difficulty delivering the high-quality images needed to identify suspected robbers or other intruders. Too often, the result is severe image artifacts (e.g., vertical smearing, over-saturation, under-exposure) that obscure important details.

Security cameras based on Pixim's Digital Pixel System® (DPS) technology are able to capture high-quality, detailed images in both the darkest and lightest areas of a scene simultaneously, and they maintain that image quality even under changing and uncontrolled lighting conditions. Pixim-Powered cameras can show facial features with sufficient detail and texture for identification. They capture accurate color, skin tone, and details under the challenging lighting conditions of public view monitors (PVMs), which are effective both to deter bad behavior (e.g., bank robberies) and to catch criminals. They can follow a suspect, in crisp and accurately colored detail, through varying lighting conditions, and they can display information useful to investigators, such as markings on a bag or unusual jewelry. They can also record activities implicating inside jobs: employees on the take or otherwise acting in opposition to the financial institution's interests.

In the end, Pixim-Powered security cameras offer a powerful investigative and evidentiary tool to help financial institutions recover or keep intact their valuable resources.

An Inside Look: Digital Video Recorders

Pixim's DPS technology, compared with CCD technology, enables the higher compression of images taken by security cameras, which leads to advantages for DVRs:

- Allows the use of higher-resolution settings on the DVR without sacrificing the overall recording time (i.e., # days on a DVR).
- Enables more frames per second to be written on the DVR without sacrificing overall recording time (i.e., # days on a DVR) or resolution.
- Permits the connection of more cameras to each DVR, without sacrificing resolution or frame rate.
- Provides recordings with higher image quality for more accurate identification of people and events and for more compelling evidence.
- Makes it easier to comply with FBI and other regulations that require storage of 10 to 30 days of video – without sacrificing resolution, lowering the frame rate, or reducing the number of cameras connected to each DVR.
- Optimizes the investment in expensive DVRs.

Pixim-Powered Cameras Overcome Challenges [continued]

Common security camera problems for financial services institutions include:

- › Lack of detail of targets
- › Inconsistent clarity in bright or low light, or high-contrast lighting situations
- › Color inaccuracies in varying lighting conditions
- › Low-quality DVR recordings

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 financial services security through the following capabilities:

- › **Widest dynamic range:** Captures highlight and shadow detail – including backlit faces – in the same scene.
- › **Highest total resolution:** Makes it easy to distinguish target image features and details, even in highly variable lighting conditions.
- › **Superior color rendering:** Accurately displays color even in difficult lighting such as mixed indoor/outdoor scenes, glare, and fluorescent lighting.
- › **No “camera blindness”:** Eliminates the vertical smear, pixel blooming, and other image artifacts commonly encountered in high-contrast scenes.
- › **High image compression:** Improves image quality with smaller file size – allowing DVRs to record with higher frame rate or higher resolution, or both, while maintaining the same total recording time.

Security cameras based on Pixim technology enable financial security institutions to capture target detail accurately, even in variable and challenging lighting conditions. As a result, these institutions are better able to identify suspected thieves, whether bank robbers or unethical employees, and potentially to prevent some of their losses from theft. Additionally, Pixim-Powered security cameras can deliver the 10 days of recordings with the high quality, high resolution/high-frame-rate images needed to satisfy FBI and other regulatory requirements.



› Significant loss of information in strong backlight

› Superior image quality despite harsh lighting



› Impaired facial recognition in strong backlight

› Superior facial recognition
› Shadow and highlight detail

“Poor lighting is the most common factor that degrades the quality of video images... The use of high-dynamic range cameras should be considered to help improve the image quality.”

Recommendation and Guidelines for Using Closed-Circuit Television Security Systems in Commercial Institutions, FBI Forensic Science Commission.





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