

Optimizing Management and Control with ATEN's Panel Array Mode™

Panel Array Mode offers a visual, intuitive way to manage multiple KVM over IP ports



CONTENTS

1. Introduction to Panel Array Mode

2. How Panel Array Mode Works

3. Case Study: SCADA Server Operation for Downstream Server Operation

- [Streamlining Process Automation at an Oil Refinery](#)

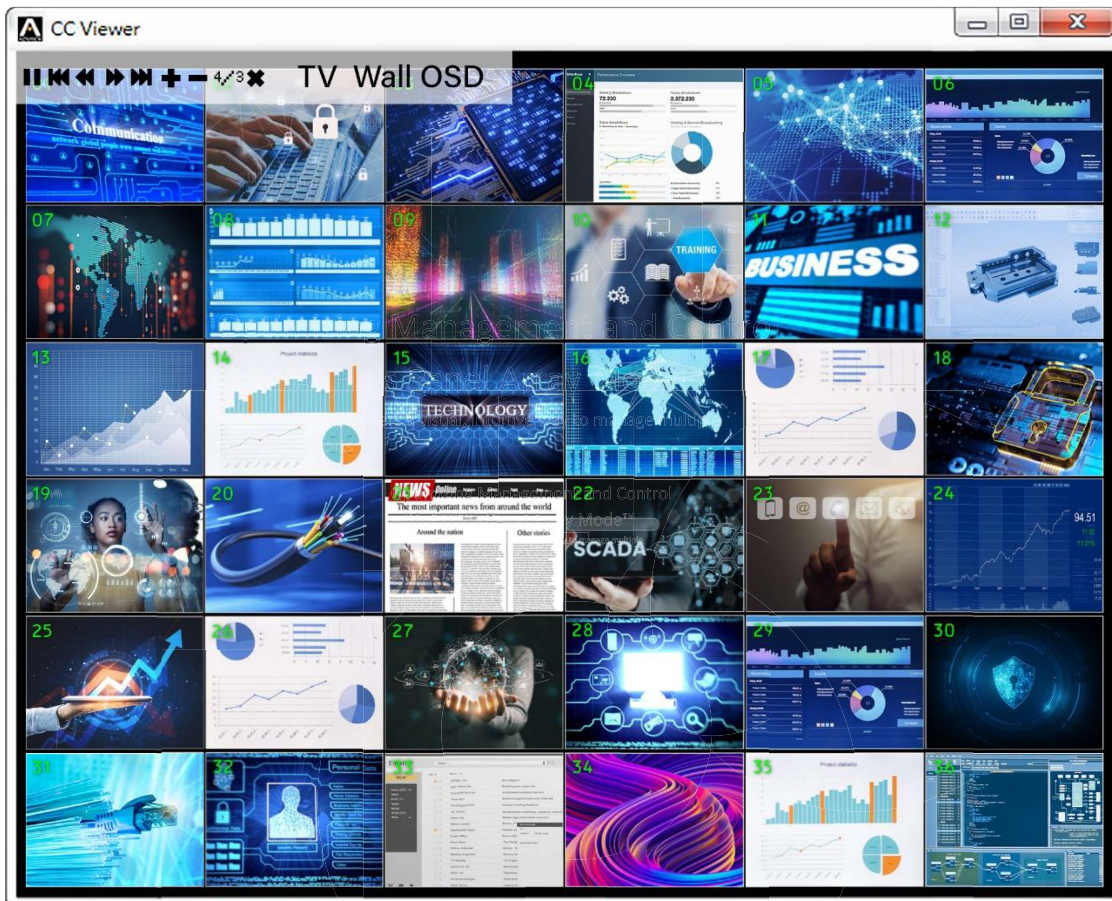
4. Case Study: Panel Array Mode in Action on the Production Line

- [Remote Operations and IT Management for Production Line Operators](#)

5. Custom Panel Array Viewing in Remote Control Applications

6. Integrating Panel Array Mode for Better Visualization

7. Further Resources



1. Introduction to Panel Array Mode

KVM switches have long been essential tools in data centers and server rooms, enabling IT admins to monitor and control multiple computers or servers via a single keyboard, monitor, and mouse. Traditional KVM switches, however, permitted operators to view only one port at a time on their screens, with a menu tree available for tracking connected ports. This setup eventually became inadequate in settings such as manufacturing and surveillance, where the need to monitor a larger number of ports was paramount or where safety was a concern. To address this issue, a more visually intuitive alternative was required—one that would allow users to remotely and simultaneously preview content from all connected ports.

ATEN's Panel Array Mode™, a standard feature on all KN series KVM over IP switches, offers a solution by enabling administrators to monitor the video output from up to 64 servers at once. KN Series KVM switches offer Panel Array Mode at the local and remote level and allow for different viewers, from Web Client to JavaClient, and WinClient.

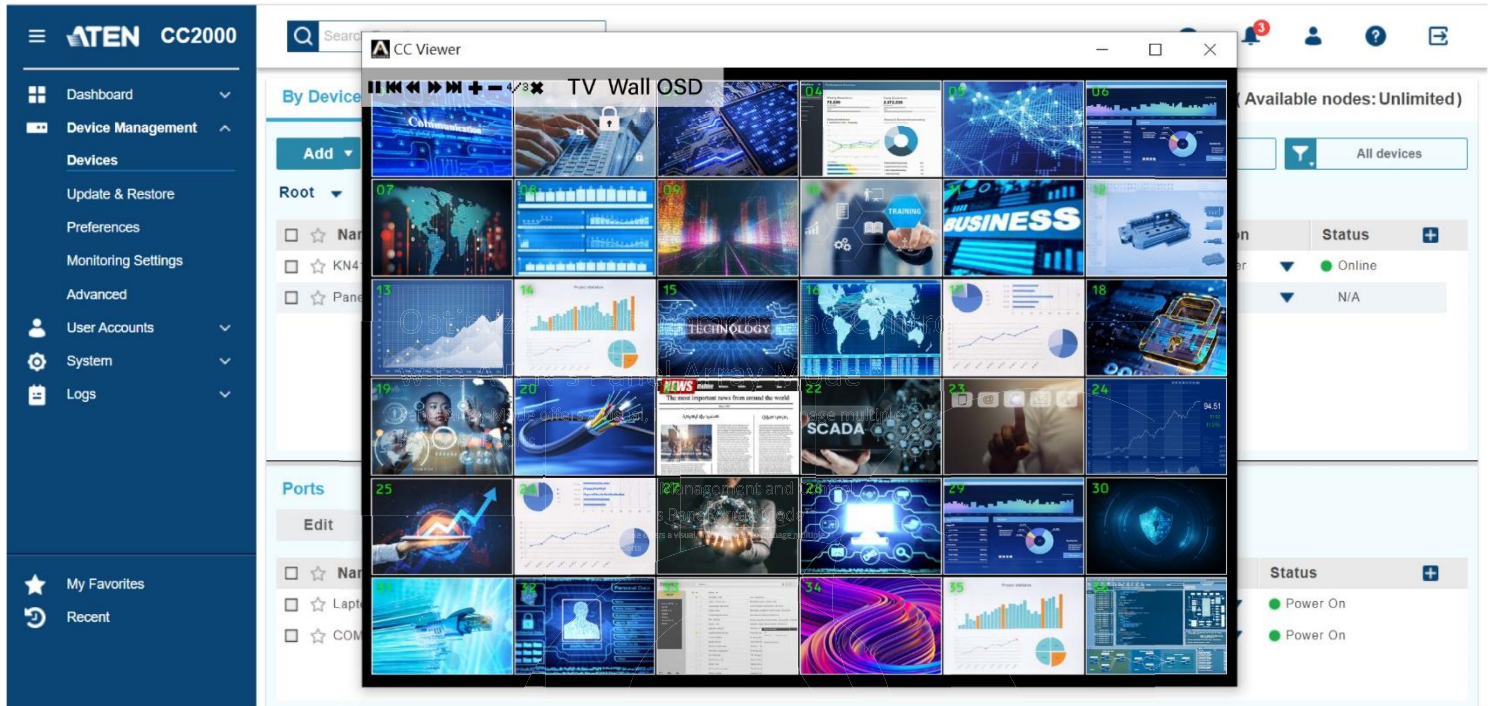


2. How Panel Array Mode Works

Panel Array Mode can be invoked either on the KVM interface toolbar or in the [ATEN CC2000 Centralized Management Software](#). Once invoked, the screen divides into a grid of up to 64 panels: each panel represents one of the switch's ports beginning with Port 1 at the upper left and going from left to right and top to bottom. The number of panels in the array can be selected by clicking the Show More Ports and Show Fewer Ports symbols on the panel array toolbar.

When the Array is first invoked, it scans through each of the ports that were selected for Auto Scanning with the Filter function. As it scans, the panel's border with the focus becomes highlighted.

Only ports that are accessible to the user are displayed. For ports that are not accessible, the panel is blank. Moving the mouse pointer over a panel displays information about the port (port name, online status, status, and resolution). Users can access a server connected to a port by moving the mouse pointer over its panel and clicking to bring up the Panel Array Mode. This powerful feature helps administrators manage their server rooms more efficiently and flexibly.



Panel Array mode in [CC2000](#) Centralized Management Software which provides IT teams with central management solution of their IT infrastructure through a single portal.

In addition to using Panel Array Mode in a web browser, after logging in you can download a JavaClient or WinClient version as a standalone app. Going one step further, CC2000 combines video sources from different KVM over IP switches and not just those connected to a single KVM.

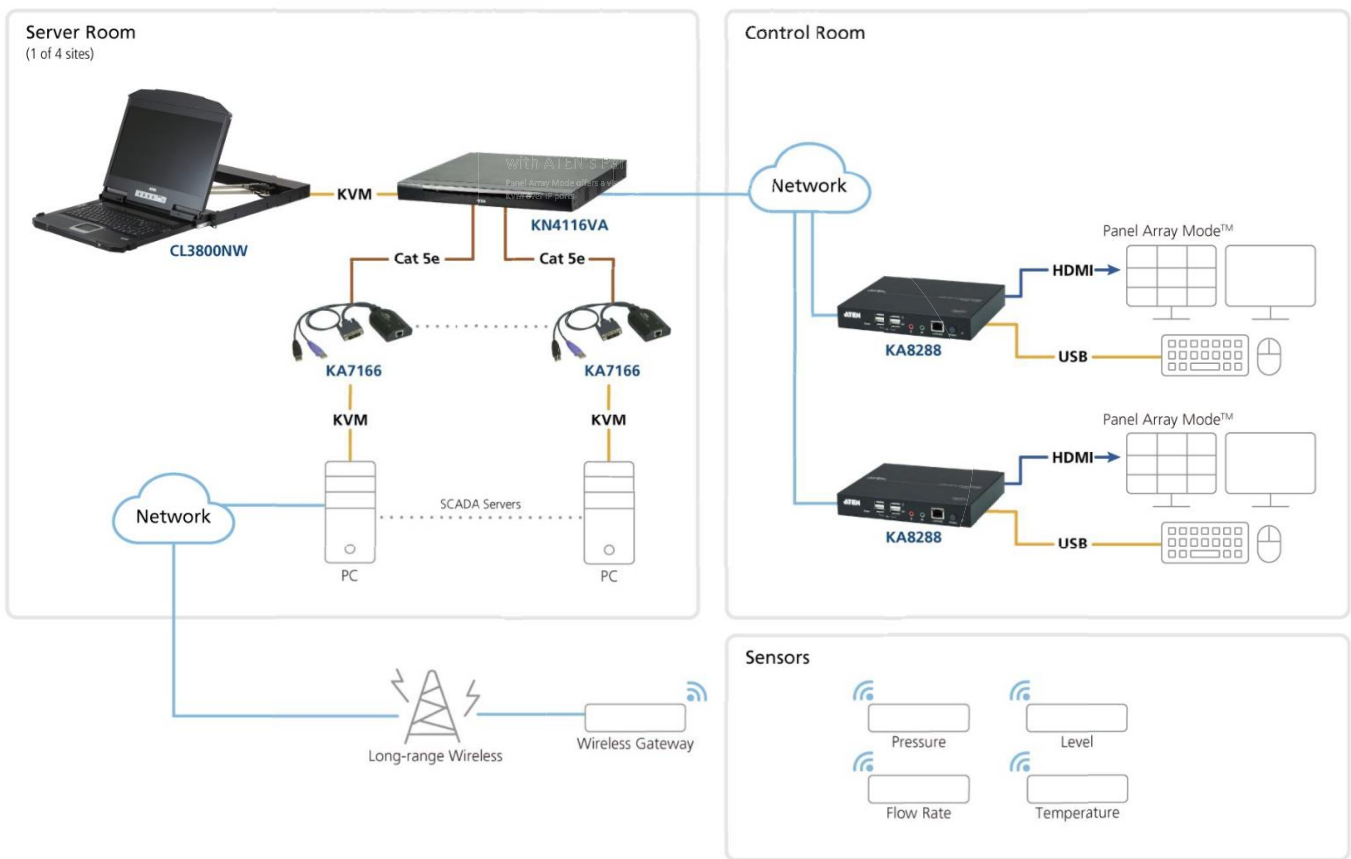
[3. Case Study: SCADA Server Automation for Downstream Server Operation](#)

[Streamlining process automation at an oil refinery](#)

A customer in the oil refinery industry needed a solution that would allow operators to optimize their process automation so that they could visualize large amounts of data both locally and remotely from their process automation systems. Their challenges included:

- Needed to enable local and remote monitoring and control of process infrastructure and equipment statuses
- The facility has server rooms at four separate sites, and various automated processes, but for security reasons no PCs or laptops were allowed in the remote site control room
- Needed support for FHD, to be rack-mountable, and to support barcode scanners

The ATEN solution integrates Panel Array Mode so that refinery operators have better situational awareness and decision making by efficiently gathering information to monitor and control refinery process flows, infrastructure/equipment statuses, and dynamic changes in real-time. Both the KN4116VA 1-Local/4-Remote Access 16-Port Multi-Interface Cat 5 KVM over IP Switch and [KA8288](#) Dual HDMI KVM over IP Console Station provide built-in Panel Array Mode functionality. In fact, the entire KA8200 series offers a Panel Array Mode that functions much the same as CC2000.



Operators are using Panel Array Mode in the oil refinery control room for simultaneous optimized visualization of video output from all installed SCADA servers on one screen.

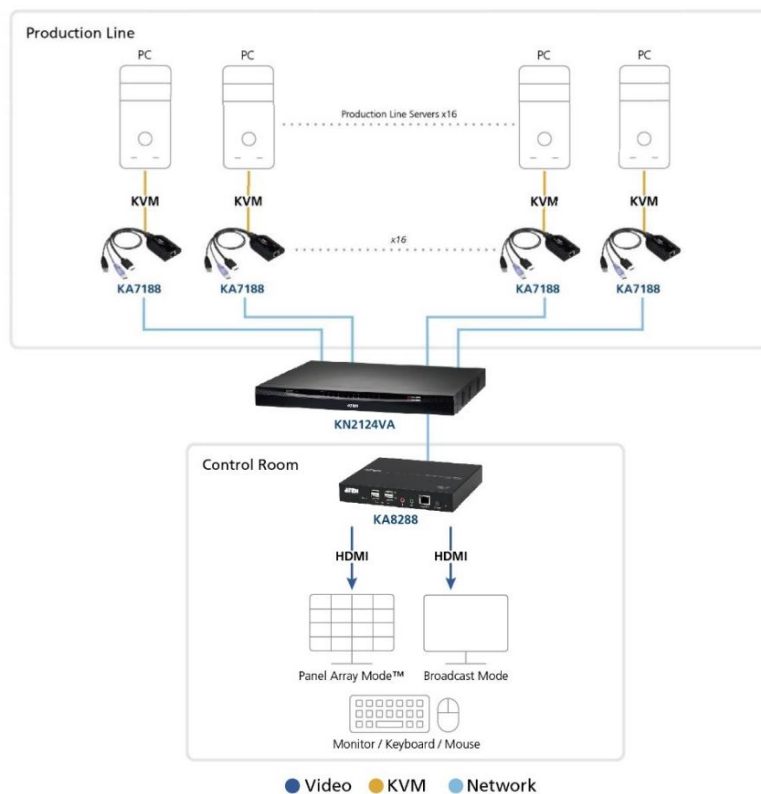
4. Case Study: Panel Array Mode in Action on the Production Line

Remote Operations and IT Management for Production Line Operators

Having evolved significantly over the years, Panel Array Mode-enabled KVM switches now provide functions that go well beyond data center applications. For example, a large manufacturing company in the UK is using Panel Array Mode to optimize its production lines. Their requirements included:

- Needed a way to selectively and remotely monitor multiple production line servers and quickly and easily maintain and update them. The servers were positioned at various locations across their extensive manufacturing facilities.
- Operators also needed the ability to view and act upon it immediately by taking control from wherever they were if something were to happen on a specific server.
- The solution had to send installation steps to each computer using files taken from a central storage system as up to 16 simultaneous computer installations required per individual production line.

The manufacturer was able to do all of this by integrating Panel Array Mode into their production line after selecting the ATEN KA8288 Dual HDMI KVM over IP Console Station and the [KN2124VA](#) 1-Local/2-Remote Access 24-Port Multi-Interface Cat 5 KVM over IP Switch.



5. Custom Panel Array Viewing in Remote Control Applications

If centralized and streamline management of its production line with a customizable remote access solution is required, the appropriate choice would be the RCMDVI101 Single Port DVI KVM over IP Switch and RCMVGA101 1-Local/Remote Share Access Single Port VGA KVM over IP Switch. This device was made with production line applications in mind.

Used in conjunction with Remote Control & Monitoring Management Software [RCMMS](#), operators have access to a customizable Panel Array Mode so that they can simultaneously monitor, manage, and control hundreds of RCM devices. They also have access to advanced, exclusive RCM and OCR API integrated functions for easier management. Over IP access eliminates the need to physically move legacy KVM solutions to malfunctioning units on the production line floor. Instead, operators can simply capture and view the device in question's screen data for direct OCR analysis and use APIs for software integration applications.



The RCMDVI101 has a customizable API Panel Array feature that allows operators to remotely monitor all connected production line machines.

Panel Array mode is also applicable in the context of surveillance. In a standard multi-building surveillance setup, there is usually one control point per building, connected to a CCTV controller. By employing KVM over IP switches with Panel Array Mode capabilities, along with a CCTV controller, it is possible to consolidate and manage an entire facility through the simultaneous viewing of multiple CCTV video recorders on a single display.



RCMMS is a Windows-based management software that provides convenient single-point access, monitor, and customizable control to multiple RCM devices within a network.

6. Integrating Panel Array Mode for Better Visualization

The main benefits of Panel Array Mode therefore are:

- Improved efficiency: Simultaneous preview of up to 64 servers' content on a single display streamlines the monitoring process in various environments such as manufacturing and surveillance.
- Enhanced workflow: The visual, intuitive grid allows operators to easily manage and control multiple computers or servers, leading to a more efficient workflow.
- Centralized remote access: By enabling remote access, the need for constant on-site troubleshooting staff is reduced, offering advantages for routine operations.

In conclusion, Panel Array Mode is a game-changing solution for various industries, including production lines, refineries, and surveillance applications. It significantly enhances workflow efficiency and its centralized remote access capabilities minimize the need for continuous on-site troubleshooting staff presence, streamlining both routine operations and overall productivity.

7. Further Resources

- **Smart Manufacturing & Production Line Solutions:**

ATEN Remote Control & Monitoring (RCM) Series of KVM over IP Switches

<https://www.aten.com/global/en/products/kvm/remote-control-&-monitoring-solutions/>

RCM464V, RCM416, RCM816, RCM464VA, RCM416A, RCM816A, RCM416VA, RCM432VA

- **Server Room Solutions:**

ATEN KVM over IP Switches:

<https://www.aten.com/global/en/products/kvm/kvm-over-ip-switches/>

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KVM over IP Matrix System (KVM over IP Extenders)

<https://www.aten.com/global/en/product-landing-page/control-room/kvm-over-ip-matrix-system/>

ATEN LCD KVM over IP Switches:

[https://www.aten.com/global/en/products/kvm/lcd-kvm-switches--consoles/?f4\[\]=1](https://www.aten.com/global/en/products/kvm/lcd-kvm-switches--consoles/?f4[]=1)

- **Control Room KVM Solutions**

5K KVM over IP Matrix System

<https://www.aten.com/global/en/products/kvm/kvm-over-ip-matrix-system/?f4828%5B%5D=1&f43%5B%5D=47>

- **Management Software**

CC2000: ATEN Centralized Management Software

<https://www.aten.com/global/en/products/kvm/management-software--control-center/cc2000%204.0/>

- RCMMS: ATEN Remote Control & Monitoring & Management Software

<https://www.aten.com/global/en/products/kvm/management-software--control-center/rcmms/>