



# Air Traffic Control Solutions

for Enhanced Point-to-Point IP Extension



# Future-Proof Air Traffic Operations with Digital ATC Bundle Solutions

The air traffic control (ATC) market continues to grow and is set to reach USD\$9.45 billion by 2027 at a rate of 6.96% CAGR during the 2020-2027 forecast period, according to Fortune Business Insights. This is due to the growing number of airports worldwide, the need for better airspace management technology, and even a rise in passenger numbers. Cyber security is also a growing concern among ATC operators as well since its attack surface has grown as part of greater digitization of systems operations, delivering passenger services, and communication lines. Thus, ATC operators need reliable, secure solutions in place more than ever. To support the ever-evolving and mission-critical demands of air traffic control technology for operators, ATEN offers four bundled solutions that support the latest in redundancy, screen resolutions, customization, and security. ATC depends on fast and secure information and communication for safe operations and ATEN knows this, which is why we've developed KVM over IP solutions that meet the challenges posed by this crucial global industry.

With these solutions in place, air traffic operators can quickly and easily switch between two servers and can do so with LAN and power redundancy, secure data transmission, vivid resolutions for radar monitoring, and much more. ATEN KVM over IP solutions help airports create a future-proof, secure air traffic solutions that make it easy and efficient for air traffic controllers to remotely monitor the UHD output of computers and serial devices from single-display workstations at short distances and dual-display workstations at distances up to 6.5 meters, while providing a smooth, ergonomic desktop experience.

## Challenges Facing Air Traffic Controllers:

- ATC operators need a solutions that allow for the installation of devices to be separated from the operators' desks in an air traffic control room, which creates an optimal work environment away from the heat and noise of servers. This in turn also lowers the chance for human error.
- Setups need to allow for system backup on a secondary PC for power and network redundancy purposes in case of system failure.
- Specific video resolutions are required for radar monitoring, in particular 2K x 2K screen quality (2048 x 2048 @60Hz).
- Air traffic controllers demand easy and fast switching between computers without going through a management software.

## ATEN Solutions

To accommodate control room requirements for air traffic control, ATEN offers 3 KVM over IP ATC Bundle solutions:

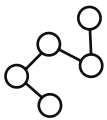
KE6910 ATC Bundle	KE6920 ATC Bundle	KE9950 ATC Bundle
2x KE6910T + 1x KE6910R	2x KE6920T + 1x KE6920R	2x KE9950T + 1x KE9950R



With two (2) transmitters connected to two (2) PCs/servers (both in the control room) and one (1) receiver connected to the workstation, air traffic control operators can quickly and easily switch between two servers, enhancing point-to-point extension with no distance constraints. One of the PCs/servers is meant to be the primary one (with fiber connectivity) whereas the other one (with copper network connectivity) serves as a secondary server and as a backup. In response to any contingency, switching between both PCs/servers can be as seamless and fast as 1 second via a pre-defined hotkey setting. In addition, each KVM over IP extender is equipped with a LAN port and power redundancy.

With ATEN ATC bundle solutions in place, ATC operations can greatly reduce the risk of network threats and security vulnerability, and also avoid the need to go through software for complex device management. What's more, ATEN KVM over IP ATC Bundle solutions support customizable hotkey switching for network ports.

In addition to Air Traffic Towers, ATEN ATC Bundle Solutions can be implemented in Approach Control Room, and Area Control Center applications. ATEN ATC Bundle Solutions support exceptional 2K x 2K screen resolutions dedicated to radar monitoring in Approach Control Room and Area Control Center air traffic control scenarios.



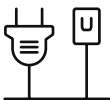
### Enhanced Point-to-Point IP Extension

Enhances point-to-point IP extension with utmost system reliability and cyber security, enabling a faster response to mission-critical control room operations.



### Exceptional 2K x 2K for Radar Monitoring

Supports 2K x 2K screen resolution for radar monitoring in Approach Control Rooms and Area Control Centers in air traffic control scenarios.



### LAN & Power Redundancy

Supports dual power and network connections for system failover, ensuring robust system uptime.



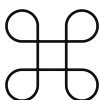
### Secure Data Transmission

Utilizes AES-128 bit encryption to secure all data before it's transmitted over a network and decrypts the data on the receiver.



### Primary & Secondary Architecture

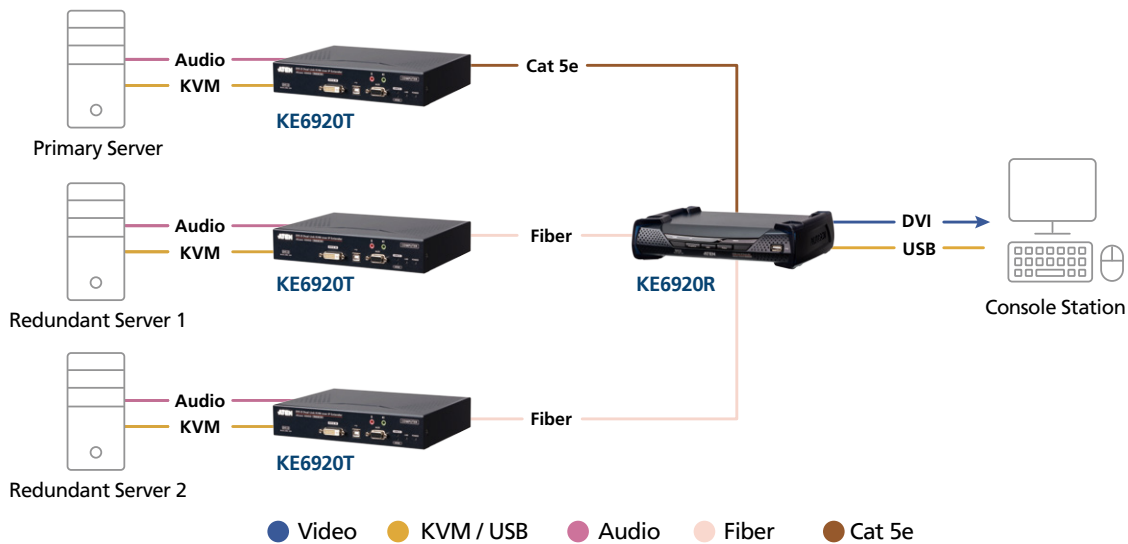
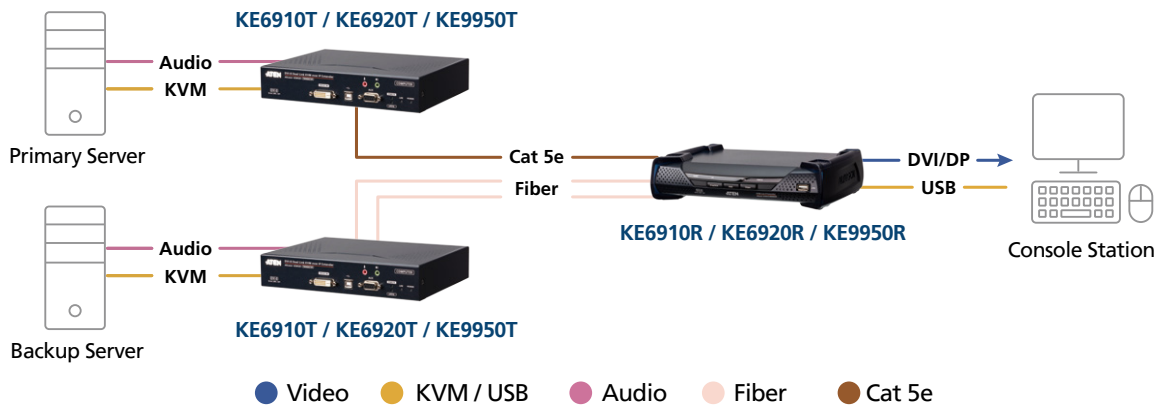
Enables connection to a primary and a secondary computers, allowing instant system failover via hotkey switching without moving around workstations.



### Hotkey Switching

(a) With the KE6920R, hotkey switching enables switching of network ports between 2 or 3 PCs/servers connected to the KE6920T devices. When two LAN connections are established between the transmitter and the receiver, port switching will automatically go to the backup LAN connection when the primary one goes down.

(b) With the KE6910R / KE9950R, hotkey switching enables switching between only 2 PCs/servers connected to KE6910T / KE9950T devices.



## ATC Bundle Solutions to Reinforce Air Traffic Control Digitization

In fast-paced air traffic scenarios, timely information and communication is crucial to safe and efficient operations. To reduce the risk of cybersecurity threats, ATEN's ATC Bundle Solutions can be easily deployed in control rooms in the following air traffic control scenarios to enable simplified installation and ensure secure and dedicated workstation operations:



Air Traffic Control Tower



Approach Control Room



Area Control Center





## ATEN ATC Solution in Action

In a successful deployment that integrated one of ATEN's ATC Bundle solutions an airport wanted to extend the distance between operators and servers in both an air traffic control tower and an area control center. In addition, the solution needed to allow smooth, stable switching between primary and secondary servers. The ATEN solution was to install various KE9950 transmitter and receiver models as follows, which allowed for 2K x 2K resolution, and customizable hotkey switching between 1Rx to 2Tx to switch network ports in case of any unexpected network downtime. The solution chosen was:

Air Traffic Control Tower	Area Control Center
KE9950T x 4	KE9950T x 44
KE9950R x 2	KE9950R x 22



# Applications

Although ATC Bundle Solutions are purposed to reinforce ATC control room operations, they're also perfectly suited to many other industrial applications where point-to-point KVM over IP extension, robust system failover, real-time monitoring and lossless video clarity matter.



Broadcast Center



Air Traffic Control Center



Emergency Command Center



Industrial Control Room



Network Operation Center



Operation Control Center



Security Control Room



Tactical Operation Center



Traffic Control Center

# Product Comparison



Model	KE6910R	KE6910T	KE9950R	KE9950T	KE6920R	KE6920T
Boundless Switching	•	•	•	•	•	•
USB Peripheral	•	N/A	•	N/A	•	N/A
Over IP	•	•	•	•	•	•
RS-232 Support	•	•	•	•	•	•
USB Storage Transmission	•	•	•	•	•	•
SFP Fiber Module Support	•	•	•	•	•	•
Tx Local Console	N/A	•	N/A	•	N/A	•
Network Fail over	•	•	•	•	•	•
Power Fail over	•	•	•	•	•	•
Dual SFP Slot	N/A	N/A	N/A	N/A	•	•

## Additional Reference

The ATEN KVM over IP Matrix System

<https://www.aten.com/global/en/product-landing-page/ke-series/v2/>



Scan for more Information



## Corporate Headquarters

ATEN International Co., Ltd.  
3F, No.125, Sec. 2, Datung Rd., Sijhih District,  
New Taipei City 221, Taiwan  
Phone: +886-2-8692-6789 Fax: +886-2-8692-6767  
<https://www.aten.com/global/en/>  
E-mail: [marketing@aten.com](mailto:marketing@aten.com)

## America Region:

ATEN Technology Inc.  
15365 Barranca Parkway, Irvine, CA 92618, U.S.A.  
Phone: +1-949-428-1111 Fax: +1-949-428-1100  
<https://www.aten.com/us/en/>  
E-mail: [sales@aten-usa.com](mailto:sales@aten-usa.com)

## LATAM & Caribbean Region

<https://www.aten.com/la/es> (Spanish)  
<https://www.aten.com/la/pt> (Portuguese)  
Email: [Latam@aten.com](mailto:Latam@aten.com)

## ATEN LATAM MEXICO S.A DE C.V

Plaza Polanco, Calle Jaime Balmes No. 11, Torre B,  
2F (201FA, 201FB), Colonia Polanco, Alcadia Miguel Higuero,  
CDMX, CP 11510  
<https://www.aten.com/la/es/>  
E-mail: [mexico@mexico.aten.com](mailto:mexico@mexico.aten.com)

## EMEA Region:

ATEN Infotech N.V.  
Mijnwerkerslaan 34, 3550 Heusden-Zolder, Belgium  
Phone: +32-11-53-15-43 Fax: +32-11-53-15-44  
<https://www.aten.com/eu/en/>  
E-mail: [sales@aten.be](mailto:sales@aten.be)

## ATEN U.K. Limited

466 Malton Avenue, Slough SL1 4QU, U.K.  
Phone: +44-1753-539-121 Fax: +44-1753-215-253  
<https://www.aten.com/gb/en/>  
E-mail: [sales@aten.co.uk](mailto:sales@aten.co.uk)

## ATEN Poland Sp. z o. o.

2 Gottlieb Daimler Street 02-460 Warsaw, Poland  
Phone: +48-514-120-220  
<https://www.aten.com/pl/pl/>  
E-mail: [poland@aten.com](mailto:poland@aten.com)

## ATEN Romania S.R.L.

10 Bucuresti-Nord Road, Global City Business Park,  
Building O 13, 6th floor, Voluntari, Ilfov County, Romania  
Phone: +40-314-257-746  
<https://www.aten.com>  
E-mail: [romania@aten.com](mailto:romania@aten.com)

## ATEN Russia Rep. Office

Office 14212, No.14 Serebryakova Proezd,  
Moscow, Russia  
Phone: +7-495-134-2808  
<https://www.aten.com/ru/ru/>  
E-mail: [russia@aten.com](mailto:russia@aten.com)

## ATEN Info Iletisim Ltd.

Beştepe Mah.Yaşam Cad.,  
Neorama Is Merkezi 13-A / 76  
Yenimahalle Ankara, Turkey  
Phone: +90-312-284-0027  
<https://www.aten.com>  
E-mail: [turkey@aten.com](mailto:turkey@aten.com)

## Oceania Region:

ATEN ANZ Pty Ltd.  
Suite 3. 19, 32 Delhi Road, North Ryde,  
NSW 2113, Australia  
Phone: +61-2-9114-9933 Fax: +61-2-8072-3723  
<https://www.aten.com/au/en/>  
E-mail: [sales@au.aten.com](mailto:sales@au.aten.com)

## Asia Pacific Region:

ATEN China Co., Ltd.  
Beijing Headquarters  
18/F, Tower A, Horizon International Tower, No.6,  
Zhichun Road, Haidian District, Beijing, China 100088  
Phone: +86-10-5225-0110 Fax: +86-10-8296-1318  
<https://www.aten.com/cn/zh/>  
E-mail: [sales@aten.com.cn](mailto:sales@aten.com.cn)

## Shanghai Branch

18E, Shanghai Industrial Investment Building, No. 18  
Cao Xi Bei Road, Xuhui District,  
Shanghai 200030, China  
Phone: +86-21-3126-0110 Fax: +86-21-3126-0110-310  
<https://www.aten.com/cn/zh/>  
E-mail: [sales@aten.com.cn](mailto:sales@aten.com.cn)

## Guangzhou Branch

Room 3913, Ren-Feng Building, No. 490  
Tian He Road, Tian He District, Guangzhou 510620, China  
Phone: +86-20-3883-0110 Fax: +86-20-3835-0810  
<https://www.aten.com/cn/zh/>  
E-mail: [sales@aten.com.cn](mailto:sales@aten.com.cn)

## ATEN Japan Co., Ltd.

Tokyo Headquarters  
ATEN Bldg. 8-4, Minami-senju 3-chome,  
Arakawa-ku, Tokyo 116-0003, Japan  
Phone: +81-3-5615-5810 Fax: +81-3-3891-3810  
<https://www.aten.com/jp/ja/>  
E-mail: [sales@atenjapan.jp](mailto:sales@atenjapan.jp)

## Osaka Branch

Awajimachi Dai-Building 3F  
3-1-9, Awajimachi, Chuo-ku, Osaka-shi, 541-0047, Japan  
Phone: +81-6-6229-5810 Fax: +81-6-6229-8810  
<https://www.aten.com/jp/ja/>  
E-mail: [sales@atenjapan.jp](mailto:sales@atenjapan.jp)

## Kyushu Office

Hakata High Tech Bld.7F, 3-7-35, Hakataeki Mae,  
Fukuoka Shi Hakata Ku, Fukuoka Ken, 812-0011, Japan  
Phone: +81-92-710-6108 Fax: +81-92-710-6148  
<https://www.aten.com/jp/ja>  
E-mail: [sales@atenjapan.jp](mailto:sales@atenjapan.jp)

## Nagoya office

Nishiki Maruemu Building 3F, 3-1-30, Nishiki, Naka Ku,  
Nagoya Shi, Aichi Ken, 460-0003, Japan  
Phone: +81-52-201-5810 Fax: +81-52-201-5811  
<https://www.aten.com/jp/ja>  
E-mail: [sales@atenjapan.jp](mailto:sales@atenjapan.jp)

## ATEN Korea Co., Ltd.

Seoul Headquarters  
B-303, 32, Digital-ro 9-gil,  
Geumcheon-gu, Seoul 08512, Korea  
Phone: +82-2-467-6789 Fax: +82-2-467-9876  
<https://www.aten.com/kr/ko/>  
E-mail: [sales@aten.co.kr](mailto:sales@aten.co.kr)

## Busan Branch

1111, 99, Centum dong-ro, Haeundae-gu, Busan 48059, Korea  
Phone: +82-51-782-7156 Fax: +82-51-782-7157  
<https://www.aten.com/kr/ko/>  
E-mail: [roy@aten.co.kr](mailto:roy@aten.co.kr)

## Atech Peripherals, Inc.

New Taipei Headquarters  
6F, No.133, Sec. 2, Datung Rd., Sijhih District,  
New Taipei City 221, Taiwan  
Phone: +886-2-8692-6969 Fax: +886-2-8692-6926  
<https://www.aten.com/tw/zh/>  
E-mail: [taiwan@aten.com](mailto:taiwan@aten.com)

## Atech Kaohsiung Office

Room D, 8F, No. 117, Zhongshan 1st Rd.  
Xinxing District, Kaohsiung 800, Taiwan  
Phone: +886-7-286-8188 Fax: +886-7-286-8199  
<https://www.aten.com/tw/zh/>  
E-mail: [taiwan@aten.com](mailto:taiwan@aten.com)

## ATEN Advance Pvt. Ltd.

2nd Floor, 67, Sudev Complex, Kariappa Road, Basavanagudi,  
Bengaluru- 560004, Karnataka, India  
Phone: +91-80-4851-7231  
<https://www.aten.com>  
E-mail: [sales@aten.co.in](mailto:sales@aten.co.in)

## Africa Region:

### ATEN South Africa.

111 10th Road, Block A, first floor,  
Hyde Park Investment Place, Sandton, 2196  
Phone: +27 67 280 2482  
<https://www.aten.com>  
E-mail: [benjipienaar@aten.com.tw](mailto:benjipienaar@aten.com.tw)

# About ATEN

ATEN International Co., Ltd., established in 1979, is the leading provider of AV/IT connectivity and management solutions. Offering integrated KVM, professional AV, and intelligent power solutions, ATEN products connect, manage, and optimize AV/IT equipment in corporate, government, education, broadcasting and media, and transportation environments. ATEN has 630+ issued international patents and a global R&D team that produces a constant stream of innovative solutions, resulting in a comprehensive portfolio of products available worldwide.

