

# Eyes on Your Fleet – Eyes in Your Vehicles

**Industry: Transportation**

**Product: VPC-5600S**

## Introduction

Around the world, buses are one of the most dependable, profitable, and flexible forms of transportation. They're so familiar to us and have been part of our lives for so many years that it can be difficult to realize how much they've changed over the last ten to 20 years. There's now an extensive range of technology available on modern buses, and developments have taken place so quickly that it can be difficult for bus companies to keep pace and ensure their fleets are as technologically advanced as possible.

## Customer challenges

A major South American bus operator wanted a new onboard system versatile enough to deliver currently available technologies and also manage future advances.

As it would be used in an in-vehicle application, it would also have to be resistant to vibrations and have a wide operating temperature range.

### Surveillance system

To improve passenger and driver safety, bus companies began installing buses with security cameras decades ago. Putting a camera in a bus isn't a difficult thing to do, but getting multiple high-quality cameras to run simultaneously without creating wiring or maintenance complications can present a big problem. Bus operators need to know that if one camera on a bus stops working, the problem can easily be overcome, and the rest of the cameras in the network will continue recording.

Since issues relating to criminal or anti-social behavior won't always be detected as they're happening, it's also vital that companies have a reliable, cost-effective way to back up the film recorded by these cameras.

### Fleet management

"You wait half an hour for a bus, then three come along at once." Anyone who's relied on public transport will know that this old adage about the frustration of taking buses still holds true. The more able companies are to track their vehicles' position, the better placed they will be to control individual routes and deliver a smooth, reliable service.

By monitoring vehicle location, they will also be able to improve safety and protect their investment by finding out in real time if one of their vehicles goes off route or exceeds the speed limit.

### Passenger services

Bus operators need to keep their passengers happy, and that means supplying hi-tech payment, information, and entertainment systems.

Electronic payment methods are increasingly common on buses, and after paying, passengers will invariably turn on their phones, and many will hope for access to a WiFi signal. People also generally want information about their journeys so they know what stops they're approaching and how far away from their destinations they are.

## AAEON's solution

For customers in need of rugged, network video recorders, AAEON's VPC series provides a range of excellent solutions. Due to the number of cameras and other devices required for this application, the company decided to build their in-vehicle networks around the award-winning [VPS-5600S](#), which is fitted with a powerful 7th Generation Intel® Core™ processor.

### Smart PoE

The VPC-5600S features up to eight smart PoE ports with individual LAN chips, which allows the customer to install high-quality cameras throughout their vehicles. As it's a smart PoE system, these cameras don't need separate power sources, there's no risk of data loss, and malfunctioning cameras can be remotely checked and rebooted, which saves the company a huge amount of time and money on maintenance work. Even if a camera cannot be restarted, there will be no impact on any of the other devices connected to the network.

### Vehicle tracking

Onboard GPS and GLONASS systems mean the bus operator can track its vehicles 24 hours a day to ensure they remain on route and on schedule. An additional G Sensor can be used to garner information about accidents and possible instances of dangerous driving.

**The VPC-5600S features up to eight smart PoE ports with individual LAN chips, which allows users to install multiple high-quality cameras in their vehicles.**



### Passenger convenience and comfort

With support for RFID payment technologies, the VPC-5600S allows passengers to use stored value cards to pay for their journeys. It can also create a powerful WiFi hotspot, so travelers can access the Internet on their portable devices. Finally, via its HDMI port, the system can control a high-resolution passenger-information screen to deliver journey information and adverts, which give the company an additional stream of revenue.

### Hot-swappable storage

Easy-installation, hot-swappable storage modules can be added to the system to provide users with a versatile storage solution. When a bus driver returns to the depot at the end of their shift, they can quickly change storage modules and hand in the used one for the data to be backed up.

### Rugged reliability

With a certified operating temperature of -20°C to 70°C and an MIL-STD-810G rating for resistance to shocks and vibrations, the VPC-5600S is a dependable in-vehicle solution that can withstand extremes of temperature and take bumps and sudden jolts in its stride.

# Application Story



## Impact

AAEON's VPC-5600S has made it easy for the bus operator to develop a complete bus system that incorporates surveillance, fleet management, and passenger services.

The device's ease of use, computing power, modular design, and reliability mean the company has been able to efficiently upgrade its fleet, improving passenger journey experience and delivering savings in terms of both maintenance and management.

**Using the AAEON VPC-5600S, the bus company has been able to upgrade its fleet, improve passenger experience, and make savings.**



## About the VPC-5600S

The VPC-5600S is a network video recorder (NVR) with a possible eight PoE ports, each supported by their own LAN chips. With this hardware specification and the device's 7th Generation Intel<sup>®</sup> Core™ processor, users will receive the highest quality images from multiple sources without any danger of data loss. With an additional four USB3.0 ports and two LAN ports, the VPC-5600S can support up to 14 high-grade surveillance cameras.

This rugged, fanless device has a guaranteed operational temperature range of -20°C to 70°C and a DC input range of 10V to 36V. It features comprehensive storage options including two 2.5" HDD/SSD Bays and an mSATA slot, and easy-to-fit extension modules allow users to quickly and cheaply add additional display or COM ports.



## ABOUT AAEON

Established in 1992, AAEON has become one of the leading designers and manufacturers of advanced industrial and embedded computing platforms. Committed to innovative engineering, AAEON provides Industry 4.0 integrated solutions, hardware and intelligent automated services for premier OEM/ODMs and system integrators worldwide, as well as IoT solution platforms that seamlessly consolidate virtual and physical networks. Reliable and high quality computing platforms include industrial motherboards and systems, industrial displays, rugged tablets, PC/104, PICMG and COM modules, embedded SBCs, embedded controllers, network appliances and related accessories. AAEON also offers customized end-to-end services from initial product conceptualization and product development through to volume manufacturing and after-sales service programs. It is also committed to continuously redefining and harmonizing the management and development processes of the industry.

With its constant pursuit of innovation and excellence, AAEON became a member of the ASUS group in 2011, enabling the company to further strengthen its leadership, access advanced technology from ASUS, and leverage resources from within the group. AAEON is poised to offer more diversified embedded products and solutions at higher quality standards to meet world-class design and manufacturing demands in the years to come.

AAEON is an Associate member of the Intel<sup>®</sup> Internet of Things Solutions Alliance.

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