

Transportation Automation

Onboard Metro NVR in Taipei MRT



⇒ Project Intro

The Taipei Rapid Transit Corporation (TRTC) was established in 1994 as the first company in Taiwan specifically responsible for the operation of a rapid transit system. In 2004, Taipei Metro achieved an impressive average of 1.508 million car-kilometers between every delay of five minutes, making Taipei Metro number one in reliability among all Nova International Railway Benchmarking Group (Nova)/CoMET members according to data from London Imperial College's Railway Technology Strategy Centre (RTSC). Taipei Metro has held this title for four years in a row.

To enhance safety and service quality, the Taipei MRT decided to upgrade the surveillance system on their Danshui-Xindian line in 2010. The project required a suite of industrial networking and computing products that fully comply with IEC 60571 to guarantee reliable operations.

Company: **Taipei Rapid Transit Corporation (TRTC)**
Location: **Taiwan**

System Requirements

- IEC 60571 compliant networking and computing devices with vibration and shock resistant design
- Powerful and reliable industrial computers for seamless integration with the communication backbone and video surveillance system
- High system performance for video recording and playback
- Fanless design for reliable system operation

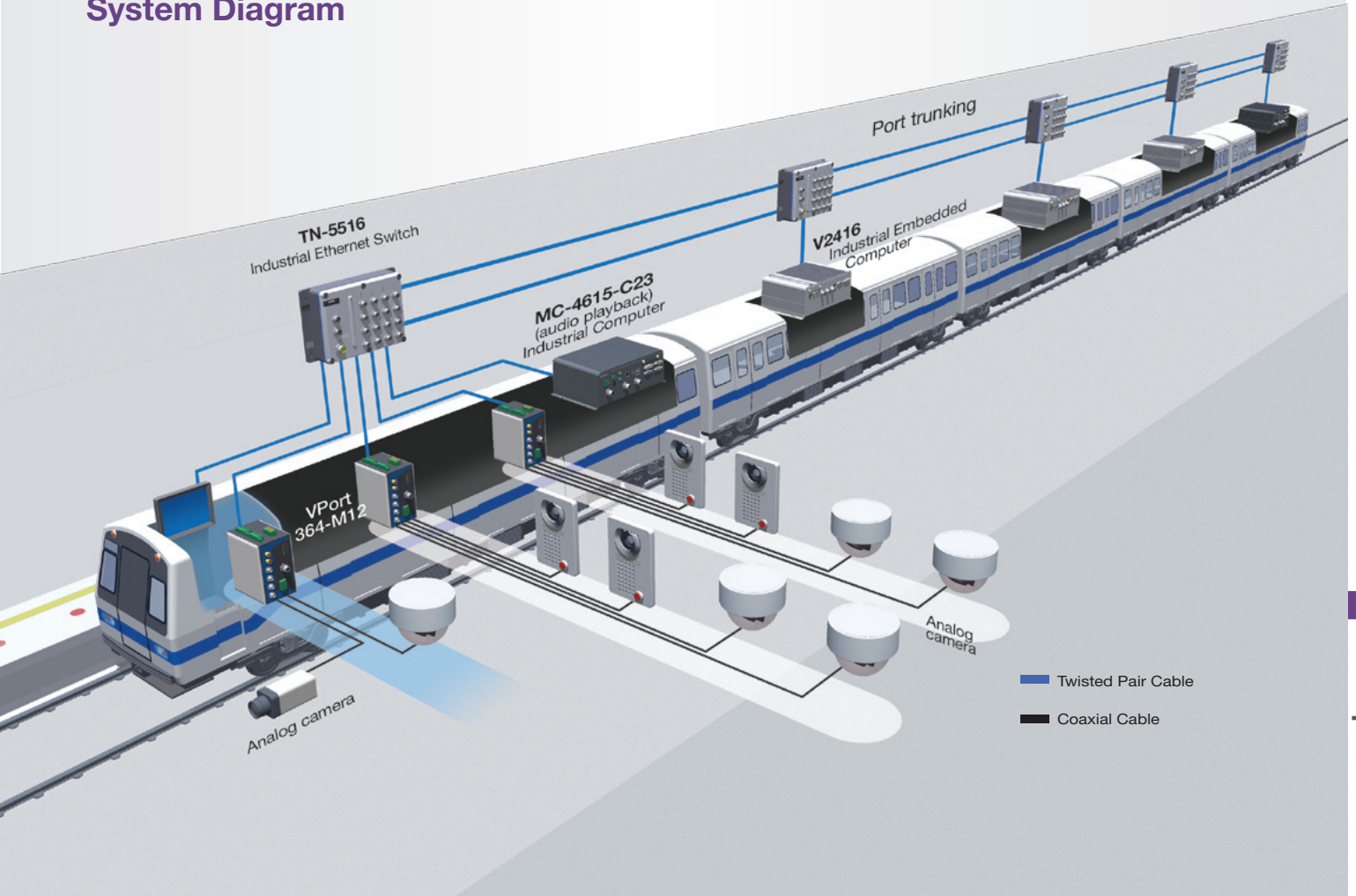
Moxa Solution

The Taipei MRT required powerful and reliable industrial computers that are able to seamlessly integrate with the communication backbone and video surveillance system. Moxa's IEC 60571 compliant networking and computing devices were selected to create onboard Network Video Recording (NVR) systems.

Moxa's TN-5516 Ethernet switches were deployed throughout the entire metro to provide an IP-based communication backbone. The system operator used the switches' port-trunking function to enable a wider bandwidth. With the TN-5516, up to eight ports can be assigned to one trunk group to optimize network connections and create redundant paths for a passenger-oriented system (POS). The MC-4615-C23 computers were deployed in the driver's cab to perform real-time monitoring and playback of the images transmitted from the cameras. These images can also be recorded by the MC-4615-C23 computers. From the display located in the driver's cab, the driver can monitor and play back the images from the selected cameras. In addition, V2416 computers in each passenger car are responsible for monitoring and recording the images from the cameras, allowing the driver to view images from the entire train.

Vibration and shock are a constant concern for rolling stock applications. All of Moxa's selected products are equipped with M12 connectors and offer a fanless design to reduce the number of potentially unreliable moving parts, and consequently guarantee the reliability of the metro's onboard applications.

System Diagram



Why Moxa?

- Wide selection of IEC 60571 compliant industrial networking and computing products
- Moxa has successful reference sites for railway onboard communications around the world
- High performance and reliable system to operate onboard surveillance applications
- Fanless hardware design to ensure reliable operation on metro

⇒ Products



TN-5516 Series 16-port Managed Ethernet Switches

- Wide power input range from 12 to 110 VDC
- Easier maintenance with three rotary switches for setting the last 3 digits of the IP address



MC-4615-C23-XPE Series x86-based Core 2 Duo Embedded Computer (by project based)

- Intel Core 2 Duo SP9300 2.26 G Hz processor, 1066 MHz FSB
- 2 GB DDR3 SODIMM system memory
- Dual Independent Displays (VGA + DVI-I)



V2416 Series x86-based Atom 1.6 GHz Embedded Computer

- Intel Atom N270 1.6 Ghz, 512K Level 2 cache
- Built-in 1G DDR2 system memory
- Dual independent displays (VGA, DVI-I selectable)



VPort 364-M12 Series 4-channel H.264 Industrial Video Encoders

- Dual simultaneous video streams for H.264 and MJPEG
- Video stream up to 30/25 frames/sec at full D1 (NTSC: 720 x 480; PAL: 720 x 576) resolution