

Seamless Roaming Infrastructure for Factory Inspections

System Requirements

- Network infrastructure that is easy to deploy and scale up
- Reliable Wi-Fi connectivity to ensure real-time data collection and communication

Why Moxa


- Eliminates Ethernet cabling, reducing installation and management costs
- Devices that automatically identify and recover connection issues to help users build adaptive Wi-Fi networks
- Compact, rugged product design that easily fits in constrained spaces and can resist constant vibrations
- Wireless resilience technologies such as Turbo Roaming and AeroMesh for reliable wireless connectivity

Moxa Products




AWK-3252A Series 
802.11ac Wireless AP/Client



AWK-1151C Series 
802.11ac Wireless Client



SDS-G3008 Series 
Smart Ethernet Switches



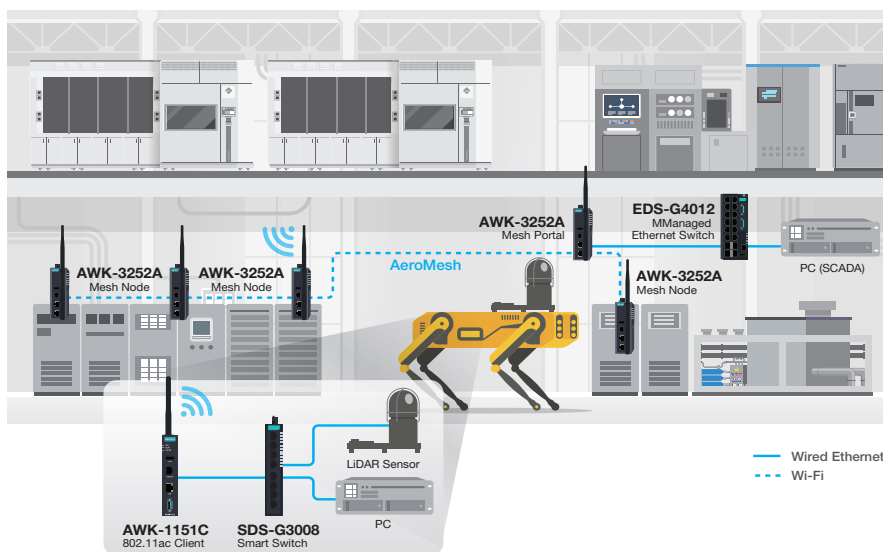
EDS-G4012 Series 
Managed Ethernet Switches



To improve worker safety and help advance their sustainability goals, a global leading semiconductor company in Taiwan deployed robotic dogs in unmanned and inaccessible areas of the factory. In the event of an emergency such as an earthquake or a chemical leak, operators use these robotic dogs to conduct operational health and safety inspections to ensure compliance in the plant. This method allows maintenance engineers to review site data remotely and safely assess suspected hazards to quickly perform the appropriate action and minimize downtime.

The robotic dogs are equipped with cameras and a multitude of sensors, such as LiDAR. The industrial-grade AWK-1151C Series 802.11ac clients and SDS-G3008 Series smart switches feature a compact and rugged design that easily fits onboard the robotic dogs and ensures reliable data transmissions. Moxa's client-based Turbo Roaming technology enables millisecond-level handoffs for AWK-1151C Wi-Fi clients to allow robotic dogs to seamlessly transmit collected data to the control center and receive instructions. The AWK-3252A Series acts as Wi-Fi access points mounted on the walls around the facility. These AP devices support Moxa's AeroMesh technology to form an intelligent mesh network in hard-to-wire areas with self-forming and self-healing capabilities. These features help lower cabling costs and streamline the deployment of Wi-Fi backhaul infrastructure, saving both time and effort. The mesh network also ensures quick recovery of problematic connections, maximizing uptime. Since the client's facility covers hundreds of thousands of square feet, Moxa's Wi-Fi solutions take advantage of AeroMesh's five-hop capability and ultra-low 2-3 ms per-hop latency* to facilitate long-distance transmissions and real-time video streaming while minimizing installation complexity and costs.

Using Moxa's robust industrial Wi-Fi networking solutions, the client was able to simplify the deployment of robotic dogs for emergency inspections and improve plant safety and efficiency.



*The listed 2-3 ms per-hop latency is based on test results using test infrastructure under optimal conditions. Actual latency is subject to environmental conditions.