CELLULAR ROUTER FOR AERIAL CRITICAL INFRASTRUCTURE INSPECTION

HIGHLIGHTS

✓ **Aispeco** is a manufacturer of advanced geospatial data collection platforms, capable of aerial deployment via multi-sensor payload mounting on aeroplanes and helicopters.

✓ For its payload, Aispeco needed a reliable, dual SIM card router to connect its sensors and other equipment to both an on-board computer and a remote server.

✓ Accomplishing this task seamlessly is the RUTX11 cellular router, enabling robust and reliable Cat 6 connectivity with four gigabit Ethernet ports, OpenVPN, and easy remote management capabilities.

THE CHALLENGE – A BETTER VIEW FROM ABOVE

Enabling the effective operations of today's interconnected world is critical infrastructure. Power grids, pipelines, smart cities, and the list goes on and on. The importance of this infrastructure calls for its effective and efficient inspection and predictive maintenance. Otherwise, its safety and uninterrupted operation is at risk.

The field of critical infrastructure inspection can be more complex than the infrastructure itself. Different types of infrastructures require a different set of sensors and methodologies, and the large area they cover means inspecting the whole infrastructure is not only complicated but costly and time-consuming as well.

But what if you can inspect it from above?

This idea was brought to light by the bright minds at Aispeco. Their system combines key inspection equipment, including high-resolution optical cameras, hyperspectral imaging, and LiDAR sensors from top brands such as RIEGL, Teledyne-Optech, Phase One, Sony, Jenoptik, FLIR, and others.

This payload is then mounted to compatible aeroplanes and helicopters, including ones from industry pillars like Airbus, Agusta, Bell, MD, Robinson, Sikorsky, and more.

This mobile mapping system can quickly and effectively inspect a myriad of different infrastructures spread from one horizon to the next – from above. It also allows for data-collection and device configuration customisability, with the option of adding and removing sensors without needing to replace the entire system.

However, all this gathered data needs to go somewhere to be stored and analysed. To achieve that, Aispeco's system requires connectivity. Enter: the RUTX11 cellular router.

TOPOLOGY
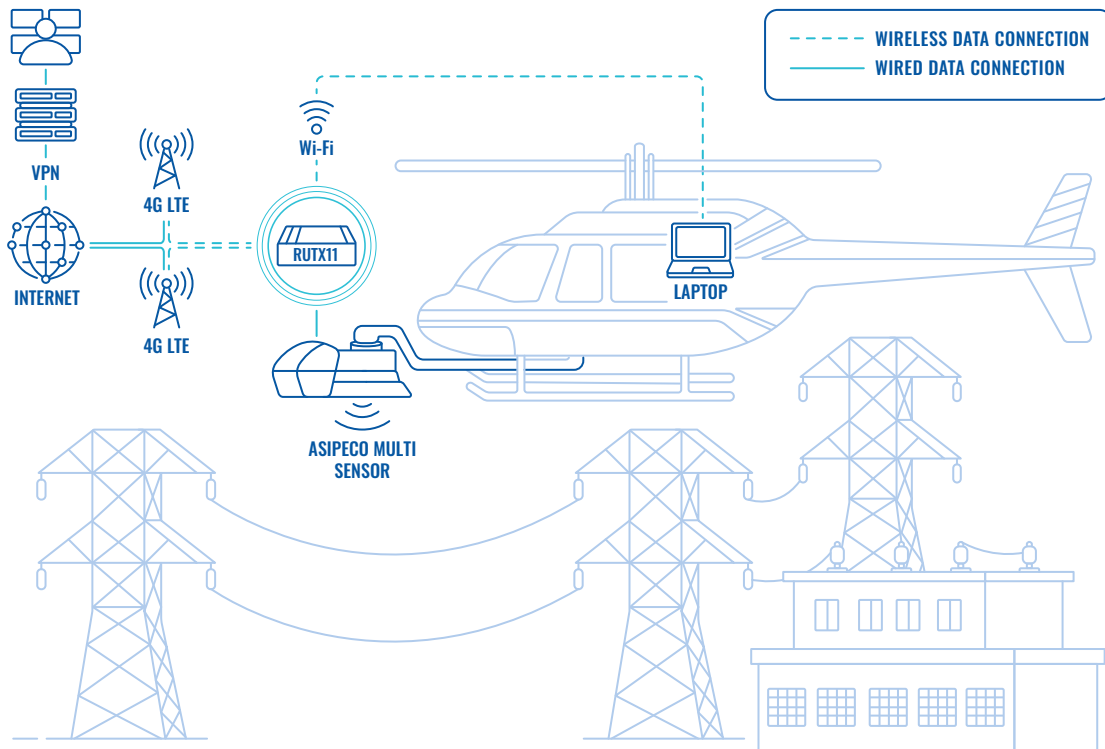
THE SOLUTION – A FLYING CELLULAR ROUTER

Installed as part of Aispeco's mounted payload, the RUTX11 industrial cellular router by Teltonika Networks is connected via its four gigabit Ethernet ports to the rest of the equipment in the payload, such as the LiDAR sensors.

This 4G router then enables wireless communication between the mounted payload and on-board computer, such as a laptop, for direct and real-time access to the system. The device also provides an internal IP address to the equipment and computer.

The connectivity enabled by the RUTX11 is LTE Cat 6, capable of speeds of up to 300Mbps with carrier aggregation. As this is a dual SIM card router, the connection is safeguarded by auto-failover, backup WAN and other switching scenarios for seamless, uninterrupted operation.

In addition to wirelessly connecting to the computer, this cellular router is also wirelessly connected to Aispeco's server for remote monitoring and maintenance of the system, continuous tracking of its location, and providing real-time customer support. The connection to the server is secured by OpenVPN provided by the RUTX11.

Bolstering the remote capabilities of this networking solution is Aispeco's use of our Remote Management System (RMS), enabling it to easily manage and control both the cellular router and end devices – even while in the air.

Importantly, this cellular router is housed in sturdy aluminium housing capable of withstanding extreme temperatures ranging from -40 °C to 75 °C. This ensures that the cold air synonymous with higher altitudes doesn't interrupt the router's operations.

When it comes to reliable aerial connectivity, you really can't go wrong with the RUTX11.