IOT GATEWAY FOR CONSTRUCTION SITE CONNECTIVITY

HIGHLIGHTS

✓ Construction sites require connectivity for many on-site equipment, but also generate high-amplitude vibrations that can impose mechanical stress on networking devices providing said connectivity.

✓ The solution to this challenge is deploying vibration and shock-resistant devices: Teltonika's TRB246 IoT gateway and TSW304 unmanaged switch.

✓ This industrial-grade duo features robust functionality and compactness, quick and easy installation, and high durability that's perfect for IoT solutions in rugged construction environment.

THE CHALLENGE – CONSTRUCTION, VIBRATION, SHOCK

As industries increasingly rely on smart technologies in pursuit of efficiency and optimisation, they encounter new challenges to overcome. And as you can imagine, challenges raised by smart technologies are best solved with even smarter ones.

Consider construction sites, for instance—a hotspot of heavy machinery and automated systems if ever there was one. Aside from the drills, cranes, and vehicles synonymous with construction, these sites are full of smaller equipment.

These include CCTV systems, automated bar gates, RFID readers, diesel generators, and an Internet connection for personnel to use for management purposes. All of them, without exception, require connectivity. But therein lies the rub.

Construction sites generate a fair bit of high-amplitude vibration from engines and heavy machinery, imposing mechanical stress on all on-site equipment and increasing the likelihood of mechanical shock to devices. This shock can also occur for simpler reasons. For example, a device installed on a moving construction vehicle that drives over a pothole, or even makes a sharp turn or sudden break, can experience shock.

In a construction site, the threat of shock is omnipresent. This means that networking devices providing Internet must be vibration and shock-resistant to survive such environments.

TOPOLOGY
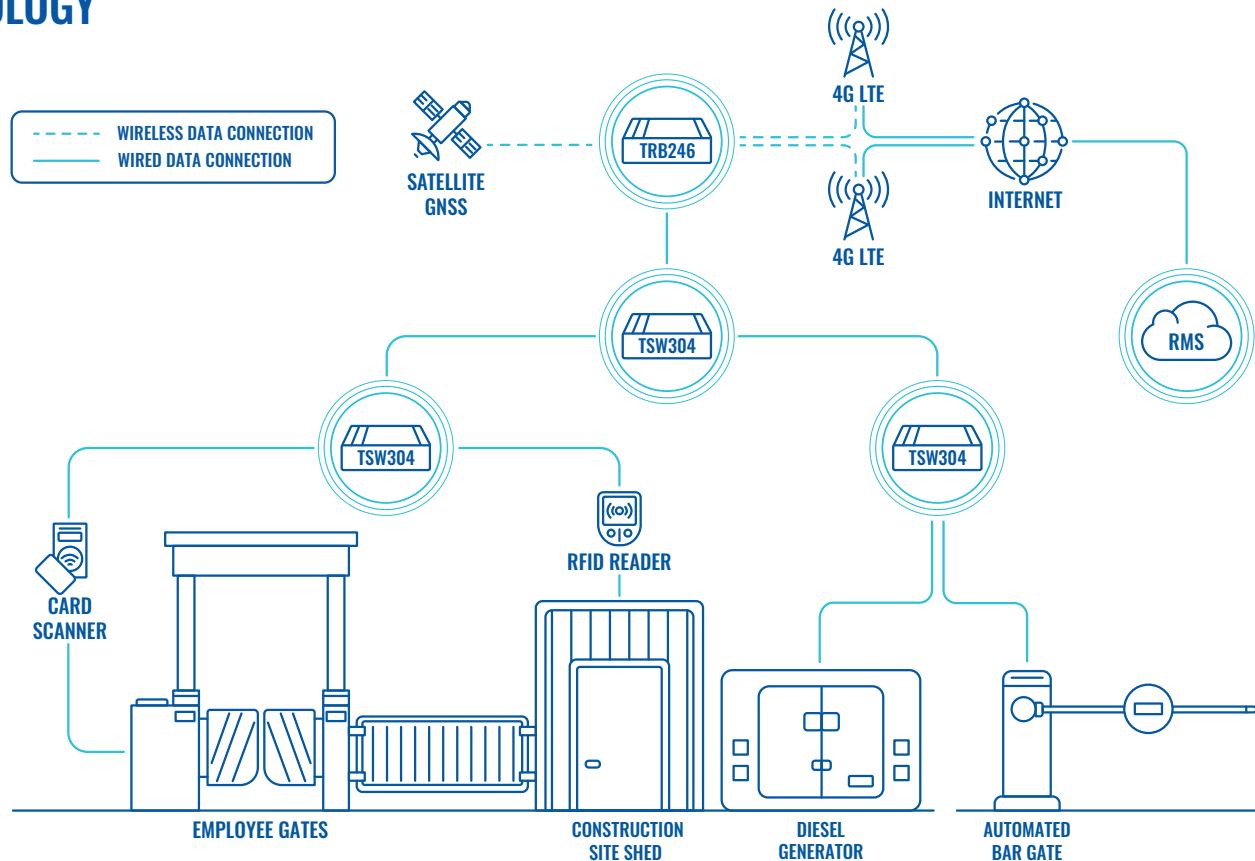
THE SOLUTION – SHOCK-RESISTANT IOT GATEWAY & UNMANAGED SWITCH

Providing connectivity in this industrial IoT solution are Teltonika's vibration and shock-resistant TRB246 IoT gateway and TSW304 unmanaged switch.

The key here is that the TRB246 has a single RJ45 port, and yet this single IoT gateway provides connectivity to all stationary equipment. This is achieved by deploying a fleet of TSW304 4-port switches, which can both connect to end equipment and to other switches, with only one of these unmanaged switches connecting to the IoT gateway.

This is a more affordable method of accomplishing the same goal: all end equipment connected within a single network. To ensure that this network remains uninterrupted, the TRB246 features dual SIM slots with auto-failover, backup WAN, and more switching scenarios.

Both the IoT gateway and the unmanaged switches are encased in industrial-grade and durable aluminium housing, featuring an operating temperature range of -40 °C to 75 °C and the much-needed vibration and shock resistance, making them perfect for rugged and vibration-filled applications.

As the TSW304 4-port switches are the ones installed in a variety of locations around the construction site, it's vital for their installation to be as quick and easy as possible. This plug-and-play unmanaged switch model is extra compact, measuring only 102 x 25 x 81.5 mm and featuring an integrated DIN rail bracket and surface mounting.

The TRB246 is not too dissimilar, measuring 83 x 25 x 74.2 mm and having DIN rail, wall, and flat surface mounting options. This IoT gateway also has other interfaces in addition to its single RJ45 port, including RS232, RS485, and three digital I/Os—giving it flexibility in connecting to both modern-day and legacy industrial equipment.

Further bolstering this flexibility is this industrial gateway's support of a wide range of key industrial protocols,

including Modbus TCP and RTU, BACnet, MQTT, and many others. It also supports key VPN services, such as Stunnel and ZeroTier, on top of a robust suite of security features safeguarding its network.

Lastly, the TRB246 is compatible with Teltonika's Remote Management System (RMS). This enables not only remote troubleshooting and firmware updating of this cellular gateway, but also opens the door to IoT remote monitoring and real-time data transmission from the end equipment the TRB246 provides connectivity to.

Don't let shock and vibrations disrupt your construction site's connectivity – deploy the TRB246 IoT gateway and TSW304 4-port switch and keep things running smoothly.