

TRANSPORTATION

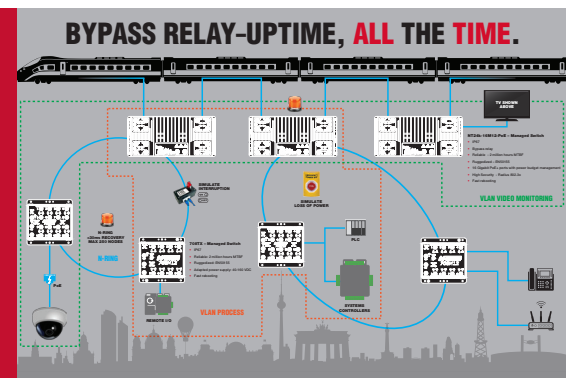


Digital Solutions for Railway Applications



RED LION DIGITALIZATION SOLUTIONS: DIGITAL TRANSFORMATION KEEPING THE RAIL INDUSTRY ON TRACK

Transportation systems rely on information, which is why many highway authorities, railways, municipalities and other organizations are working with Red Lion to ensure data and operations keep moving. Understanding market requirements, we design and deliver reliable industrial networking and automation products that are at the heart of many successful railway, subway, tunnel monitoring, traffic management and transportation systems.



UPTIME, ALL THE TIME WITH HIGH-SPEED NETWORKING

Red Lion's versatile NT24k-16M12 managed switches feature sixteen (16) all-Gigabit copper M12 X-code ports and is housed in a dust proof and water resistant IP67-rated enclosure. The NT24k-16M12 is designed to provide reliable operation in railway and other industrial applications subject to shock, vibration and other extreme conditions. Bypass relay ports enable data to continue to flow even in the event of a power outage, making this an ideal choice for rail applications.

- **Highly reliable:** EN50155, temperature, shock, vibration, 2millions hours MTBF
- **Highly redundant:** new NT24K bypass relay feature coupled with N-Ring fast healing time.
- N-Ring advantages:
 - Healing time < 30 ms
 - Fast and easy to configure.
 - 250 nodes
- **Fast booting time** avoid downtime with switches:
 - NT24k = 100s
 - 700 series = 12sec
- Improved Network Security:
 - Separate networks with VLANs
- **16 ports PoE+ switch** with 24VDC power supply not a 48VDC

STATION: SECURED, RELIABLE AND FAST NETWORKING

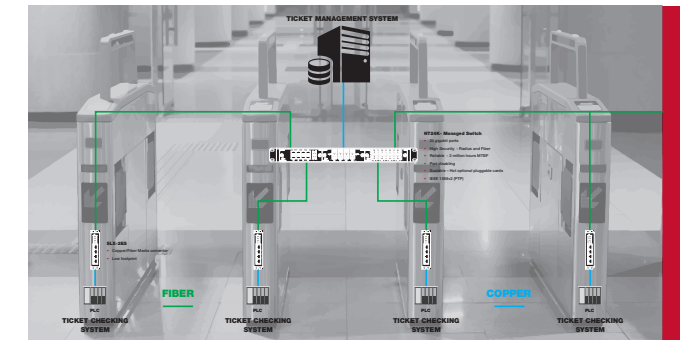
Secured monitoring and networking are the basic of all automation systems - anywhere, anytime. The entrance ticketing system of the company Thales is using Red Lion Controls Ethernet Switches SLX-2ES to control and drive their entrance ticketing systems.

THALES

Thales gates ensure the transport system is only used by fare paying passengers. It achieves this by processing the fare media of each passenger wishing to enter or leave the transport system and allowing or denying passage through the gate aisle according to the validity of the fare media. The gate can operate either under control of a central system or in stand-alone mode. The barrier mechanism gives an effective compromise between fraud prevention and physical safety of adult, child and handicapped passengers. Doors are automatically opened in case of a main power failure. The gate is designed to handle a flow of up to 10,000 passengers/day on average and up to 20,000 passengers/day at peak times, thus minimizing queuing times to enter or exit the subway system.

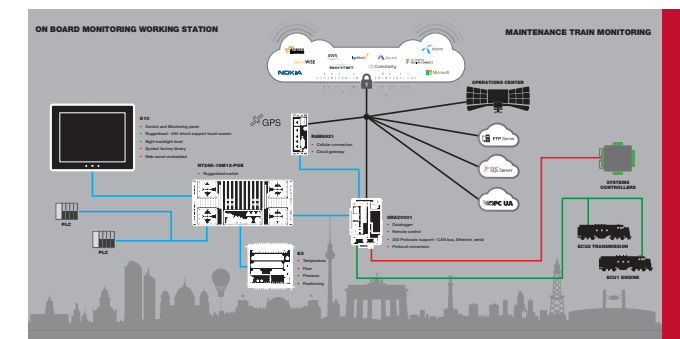
KEY STRENGTHS/SOLUTIONS

- **Highly reliable:**
 - Temperature
 - 2 million hours MTBF
- **Highly secured:**
 - Fiber
 - Port disabling
 - VLANs
 - Radius 802.3x
- **Low footprint:**
 - SLX range is small size
- **Scalable:**
 - Modules



TRACK TRAIN MAINTENANCE

Collect data, monitor and control maintenance trains while working on tracks. Red Lion's automation and networking products are monitoring and controlling maintenance systems – either the individual working systems of a working train (on board monitoring) – or to control and monitor the entire train itself (maintenance train monitoring). The collected data is forwarded to the operations center or directly to the cloud after being provisioned by protocol conversion, powered by Red Lion Controls' programming software Crimson.



REMOTE MONITORING

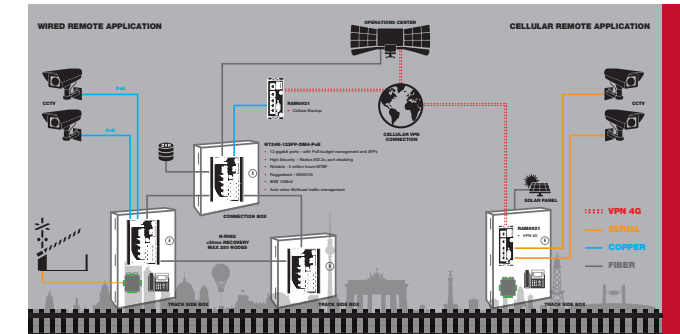
Besides wired data transfer, cloud cellular systems are getting more and more important within a connected world, even for publication environments such as train stations with a high demand of security requirements.

WIRED REMOTE MONITORING

Wayside applications are organized by section along the track; a section ring connects every section application. These rings are connected together to the operation center. Network reliability; a 4G router can be used to make a cellular backup connection.

CELLULAR REMOTE MONITORING

For isolated wayside application, a 4G router can be used to transmit information to the control center.





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