

Customer Success Story



Great Western main line Automatic Supply Restoration system

Application



Westermo Ethernet switches signal fewer delays and disruption for Great Western main line

With increasing passenger numbers and the threat of fines for not meeting punctuality targets, British rail companies are coming under increasing pressure to minimise the impact of infrastructure faults. However, a sudden loss of signalling power caused by cable or equipment faults, theft or vandalism can cause significant delays and disruption to a busy network. It is therefore essential to put in place suitable systems that not only identify failure points, but also return the rail network back to full operation as soon as possible.

Integrator:



End customer:

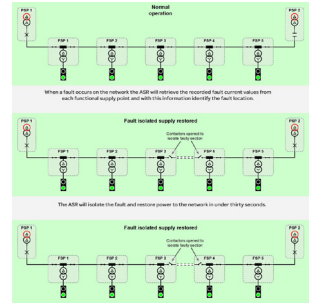


One way to overcome these problems is to install an automatic supply restoration system. These will detect a loss of power, inform operators and maintenance teams and quickly restore power to signalling equipment. This reduces delays, outages and minimises impact on customers. Installed at the trackside, an automatic supply restoration system isolates a circuit fault and then restores power automatically by reconfiguring the supply from the principal supply points, reducing a power interruption to less than thirty seconds.

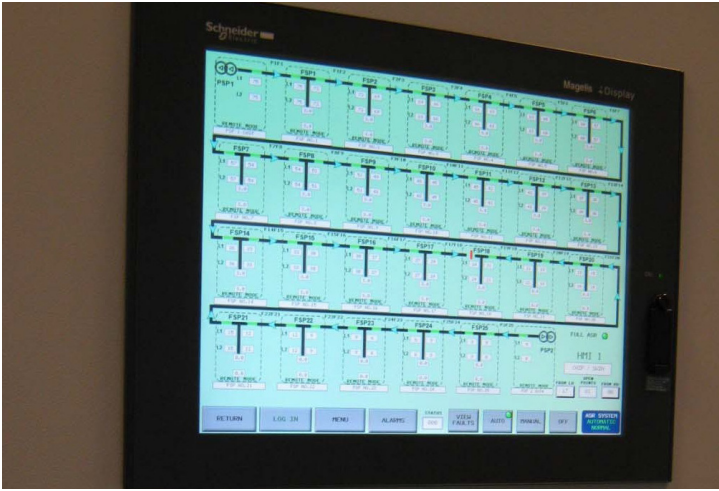
One such system, supplied by Schneider Electric, is being installed as part of a major project to upgrade to the signalling on the Great Western main line between Newbury and Reading in Berkshire, UK, a distance of about 17 miles. The signalling upgrade forms part of a wider 10-year, £5bn plan by Network Rail to expand services on the Great Western main line to accommodate the increase in demand for rail journeys.

Critical to the system is a reliable and resilient communications network to support the diagnostic and status reporting capabilities. The Schneider Electric Automatic Supply Restoration (ASR) system provides operators in the main control room with an immediate warning of a fault, enabling them to react quickly and organise the required maintenance. Using data sent over this communication network, the system produces a graphical representation of the signalling power network for viewing and analysis by remote users.

All equipment used in the automatic power recovery system and supporting communications network must be of the highest quality. It needs to be extremely robust and reliable, and meet the stringent requirements for signalling and telecommunications apparatus for trackside use. Westermo's Lynx 110-F2 Managed Ethernet Switch meets these challenging requirements and over 60 units are being installed as part of this upgrade project.



Application



Following an evaluation of several switch products, Schneider Electric chose the Westermo Lynx switch because it is compact and has low power consumption. These factors are critical for equipment installed in the trackside cabinets where space is at a premium and devices have to be temporarily powered locally when the main supply is lost. In addition, the Lynx range has Network Rail acceptance and also meets the requirements of the EN 50121-4 standard for railway trackside use.

Westermo provided application advice and technical support to help Schneider Electric with the selection and configuration of the switches for this challenging deployment. Westermo switches use the best quality components and are designed to achieve the highest Mean Time Between Failure (MTBF) figures in the industry. This is especially important for trackside locations where maintenance is both difficult and costly. In addition, they are constructed to resist the toughest operating conditions including wide temperature variations and exposure to electromagnetic interference (EMI).



Westermo Lynx switches are a critical component in the Schneider Electric ASR, reliably sending local power supply status data from their trackside location to the Network Rail 'Cloud' via a combination of fibre optic and copper cabling. Communications redundancy is provided by a fibre ring between the trackside cabinets. If there is a fault, alarms are generated and the ring automatically reconfigures to transmit the data to the Network Rail control room using Westermo's unique FRNT technology. FRNT technology is the fastest protocol on the market for re-configuring large networks in the event of a link or hardware failure. During the power outages, power for the Westermo switch is supplied from a local functional supply point until mains power is restored.




Westermo switches have been successfully used by Schneider Electric on a number of projects requiring trackside ASR systems - demonstrating their performance and reliability. As a result, Schneider Electric has now made the Lynx 110-F2 the standard switch for its Automatic Supply Restoration system.

Westermo provides a full range of data communication solutions for mission critical infrastructure networks and is an approved supplier to Schneider Electric as part of its Collaborative Automation Partner Programme (CAPP). Authorised CAPP products include modems, routers, extenders and converters.





Product/Art. no	Description
<p>L110-F2G 3643-0100</p> <p>L110-F2G-EX 3643-5100</p>	 <p>Managed Ethernet Switch</p> <p>8 × 10/100 Mbit/s, Ethernet TX, RJ-45.</p> <p>2 × 100/1000 Mbit/s, pluggable connections transceivers supported, Ethernet FX or TX, SFP.</p> <p>1 × Digital I/O.</p> <p>1 × 2.5 mm jack, console.</p> <p>Operating voltage: 19 to 60VDC.</p> <p>Operating temperature: -40 to +70°C (-40 to +158°F).</p>