



Challenges for Control Room Operations

Alarm management in complex real-time rail network control centres is a growing challenge as more products and systems are integrated into the network, and the customer wants to minimize the use of separate user interfaces for each product. Combine this with aging infrastructure and many service providers, this can be a real headache. To address this challenge, 4Tel developed an application that receives, processes, and displays many different system alerts into a single user interface, 4SITE™.

Proven History

As of January 2024, 4SITE™ is used across many industries, including the control centres of a metro railway, a passenger ferry network, and a regional railway that services passenger and heavy haul freight trains. 4SITE™ was commissioned in 2007 and continues to be maintained as a critical product and service, both for 4Tel customers and internal use.

4SITE™ consolidates infrastructure monitoring and simplifies alarm management.

What does 4SITE™ do?

The 4SITE™ system consolidates and displays the status of discrete network equipment and systems on a common web browser user interface. 4SITE™ provides detection of faults; alerts for required periodic maintenance; and device-specific alarm notifications. Depending on the user within the control environment, different alarms and notifications can be configured to meet the varying requirements. This can include operational alerts or used on a maintenance desk, for example. The aim is to simplify alert notifications to reduce the negative impacts of alarm fatigue.

Staff can access simplified hierarchies of complex device networks, view and sort devices by name, type, or group, and view device statistics from within a single configurable interface. 4SITE™ is accessible from a standard web application via the internet or an Intranet and can be configured for Android or Apple iOS devices. This minimizes the need for new hardware or for extensive training of staff.

How does 4SITE™ work?

4SITE™ is compatible with an array of legacy Supervisory Control And Data Acquisition (SCADA) systems which removes the need to purchase new hardware to update to modern functionalities. Many thousands of devices can be managed by the system at the same time. 4SITE™ takes this data feed and creates an alarm interface as a single source of truth for the management of complex, multiple supplier technology systems. 4Tel has a patented Rail Systems Mark Up Language (4RSML) which converts the many different sources of data into a common data format for processing to create a single source of truth.

By consolidating the many alerts and alarms generated by the various technology systems in place for each user, 4SITE™ can classify and appropriately distribute alarms for better management. This is a growing problem for all operators as more technology systems are introduced into the rail operating environment.

4SITE™



Software configurable to meet specific operational use requirements



Real-time alarms and alerts



Better management or maintenance staff



Better maintenance planning and recording



Automated event logging and reporting



24/7 remote technical on-going support



IOS and Android App options for field and management staff



Systems integration with other systems

4SITE™ Alarm Distribution

4Site has the capability to immediately alert nominated staff via email or text message. The alarm configuration is defined before commissioning so that only the required staff receive the alarm for actioning – assisting to reduce alarm fatigue. Individual user logins allow for custom access rights and assists in post-event management.

The appropriate distribution of alerts and alarms also enables operations teams to better manage maintenance crews. For example, rather than waiting for a field device to fail, the system can detect abnormal patterns and maintenance teams be directed to service this device before a failure occurs.

4SITE™ provides the following benefits:

- Consolidated discrete system interfaces into a common interface
- Reduce alarm fatigue by centralising notifications and classification rules.
- Configured for specific users such as maintenance, operations, security, etc.
- A consistent view to all field devices and SCADA networks for ease of troubleshooting remotely
- Individual account logins to simplify access restrictions and manage cybersecurity requirements.
- Automated alarms and condition reports to be sent to specific users with the specifics of geographical location, time, date, and actions taken.
- Removes the need to replace older SCADA or field equipment to obtain modern functionality.
- Allows all collected data and alarms to be stored for data mining and reporting.

4SITE-LXM Live protected level crossing health monitoring and management.

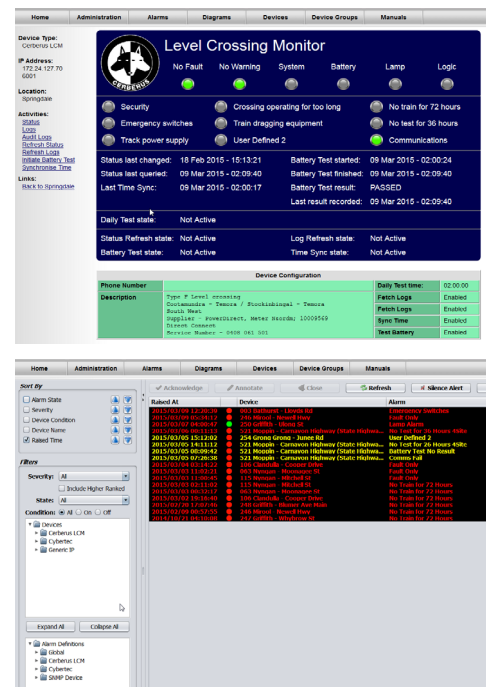
4SITE-LXM is an in-service back-office management tool for remote health and status monitoring of protected level crossings. The system was first commissioned in 2007 and is currently used by Australia Rail Track Corporation, Sydney Trains, Country Regional Network (Transport for New South Wales) as well as 4Tel and 4AI Systems for supporting the daily management of client environments.

4SITE-LXM:

- Uses proprietary and open protocols for communication.
- can work with new and legacy equipment.
- has customizable pages to look like field devices.
- can be configured for desktop or mobile use.

Benefits:

- Provides constant health monitoring of level crossings.
- Removes need for local manual testing.
- Real-time alarms distribution to technical and operations staff as required/ configured.
- Supports alarm consolidation and actioning to minimise alarm fatigue.



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