



Garrandale Group Case Study

Garrandale Group delivers reduced costs and energy savings for rail industry with Schneider Electric

Industry Case Study
United Kingdom

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Introduction

Garrandale combines innovation and the latest technology with traditional engineering skills to provide engineering solutions to the rail industry, providing jigs, fixtures and handling equipment for the manufacture of trains. This has evolved considerably over time and the company is now responsible for the maintenance and repair of carriage wash systems, fuelling stations, controlled-emission toilet systems, depot protection and lubricating systems.

Diversification of the company's product and service offering into new markets and geographical areas, combined with relationships in key industries such as rail and transport, has provided development which has further led to expanding product ranges to cater for the specific needs of customers. The company now offers a complete turnkey solution and a one-stop shop to cater for all customers' requirements with its market leading products and innovative solutions to any potential engineering requirement. Garrandale's flexible solutions come, in part, thanks to their partnerships with key manufacturers like Schneider Electric.

The Challenge

As a major supplier to the rail industry, Garrandale designs, develops, installs and maintains a wide range of train wash systems which ensure that rolling stock is kept as clean and pristine as the day it leaves the assembly yard. Garrandale offers a range of modular solutions designed to suit the individual requirements of the location and the contours of many rolling stock profiles. The flexibility of the design allows for a number of configurations, which include drive through or stationary cleaning or a combination of both, together with front and rear cleaning.

With clients ever more conscious of energy costs, Garrandale's train wash systems have been designed to include water recycling and sequence cleaning, whereby brushes are only operating when the trains are adjacent to them.

Nonetheless, train washing remains an energy intensive activity. Motors in the wash plants must be monitored carefully and protected from potential damage. Therefore, ongoing diagnostic capabilities needed to be a key component of the carriage wash installation in order that plant performance could be monitored, and maintenance could be planned to avoid transportation disruption.

The Solution

Before embarking on the project, Garrandale undertook a market assessment of potential motor starter solutions that could deliver the diagnostic and monitoring features it required. During the assessment, they considered environmental robustness as well as functionality, plus the potential for reducing the cost of site visits. After an extensive review process, Garrandale selected Schneider Electric TeSys U Multifunction with built-in Modbus communication, a self-protected combination motor starter that is simple to select, install and use.

Project at a glance

Project Type

Industry

Location

United Kingdom

Applications

Carriage wash services

Main Products and Services

TeSys U

SoMove

Customer benefits

- **Reduced maintenance costs**
- **Increased robustness and durability**
- **Energy savings**



TeSys U provides motor control for a wide range of applications, from a basic motor starter with solid-state thermal overload protection, to a sophisticated motor controller that communicates on networks and includes programmable motor protection. For Garrandale, the integrated Modbus communication was essential, as this would allow it to monitor the performance of the plant motors remotely, and use the diagnostic data to manage plant maintenance more efficiently.

Using a plug-in modular design, TeSys U allows for maximum flexibility in motor control. The compact, 45 mm wide power base can be mounted on either a panel or a 35 mm DIN rail. TeSys U is a self-protected combination starter, which means that it is a UL508 Type E device. Type E devices offer the advantage of reliability and UL508's special endurance and short circuit tests ensure a coordinated combination starter that will both clear a detected fault, and protect itself from damage.

Thanks to a state of the art design and manufacturing process, TeSys U has an extremely robust build, is highly reliable and has a very long product life due to its simplified and optimised architecture. It has been created with harsh environments in mind and, as such, was the ideal choice for the busy train depots of Hornsey and Three Bridges.

Garrandale was happy throughout all stages of the commissioning, diagnostic and fault logging processes. During commissioning it was also discovered that other motors in the train wash plant were undersized, so an upgrade TeSys U was necessary. Thanks to the unique 'plug-in' control module, this was achieved quickly and easily by borrowing modules from a later build, with the wide current adjustment providing a key benefit. The SoMove software was also utilised to quickly check starting currents and load, which assisted in the fast identification of the motor sizing issue.

The Benefits

Reduced Maintenance Costs

Due to the increased availability and transparency of diagnostic data, Garrandale has been able to monitor its train wash system remotely, allowing it to both reduce required maintenance, and plan maintenance accordingly to avoid disruption at both depots.

Increased Robustness and Durability

The TeSys U is designed to operate in the most challenging of environments and its behaviour under short circuit is outstanding. TeSys U is UL508E certified and rated 65kA 480V. Process downtime will be reduced dramatically thanks to the non-welding contact after a short circuit event.

Energy Savings

With the rising costs of energy an ever-present concern, the TeSys U dissipates 75% less energy compared to traditional motor starters. This is achieved by the reduced number of power contacts and by the very low energy consumption of the control circuit. Although the benefit of this hasn't been gained directly by Garrandale, the depots at Three Bridges and Hornsey will benefit significantly.

The demanding nature of keeping rolling stock looking their best at two of Britain's busiest train depots requires a system that is reliable, robust and energy efficient. With Schneider Electric's TeSys U combination motor starter, Garrandale has been able to deliver such a system, and has the ability to monitor the performance and health of its critical components remotely, saving both time and money.

Schneider Electric is the global specialist in energy management and automation. With revenues of €25 billion in FY2014, our 170,000 employees serve customers in over 100 countries, helping them to manage their energy and process in ways that are safe, reliable, efficient and sustainable. From the simplest of switches to complex operational systems, our technology, software and services improve the way our customers manage and automate their operations. Our connected technologies will reshape industries, transform cities and enrich lives.

At Schneider Electric, we call this Life Is On.

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