

Case Study

EUROTUNNEL STAYS ON TRACK WHATEVER THE WEATHER

A high-tech weather monitoring system helps Eurotunnel to keep trains running to schedule come rain or shine.



Situation: Eurotunnel is a round-the-clock operation

Challenge: To remain operational in all weather conditions

Requirement: A means of monitoring weather conditions at critical locations

Solution: A road weather monitoring system from Campbell Scientific

Benefits: Preventative action is made possible and disruption is avoided

Eurotunnel operates the Channel Tunnel, providing a transport connection between England and France.

The company operates shuttle services for road vehicles using specially designed trains that feature a “roll-on, roll-off” system. The 31-mile journey takes just 35 minutes, which compares favourably to travelling by sea.

Eurotunnel's trains are scheduled to make the journey under the English Channel up to six times, in each direction, per hour on every day of the year. Maintaining this schedule is vital as disruption to the timetable results in disgruntled customers and lost revenue.

Challenge: keep transport moving in all weathers

Eurotunnel's Real Time Systems team is responsible for the computer systems that ensure the trains are operational around the clock. The team also has the important task of maintaining safety systems in the Tunnel and on its approaches.

Extreme weather, particularly in the wintertime, can hamper the schedule. With this in mind, and to assist them in their crucial job, the team uses high technology measurement and prediction solutions.

"The system of alarms alerts Eurotunnel when there is a potential that ice will form on the Terminal road network, therefore increasing safety - a feature which the previous system didn't have."

Kieran O'Regan – Expert

Real Time Systems, Eurotunnel

Case Study

Requirement: monitor weather conditions at critical locations

A key part of the system's smooth roll-on and roll-off operation is the way that traffic boards and disembarks from the trains by means of the access ramps at each platform. It is vital to keep these ramps fully operational 365 days a year to prevent disruption to the shuttle loading even during adverse weather conditions.

Eurotunnel need a way to monitor weather conditions at these and other critical locations, to validate forecast information and enable them to foresee potential issues and take preventative action, such as gritting in times of snow and ice.

Eurotunnel: *"Vehicle ramps used to access the shuttle can be quite steep, and are therefore safety critical."*

"The solution we provided was created to specifically meet the needs of the customer, combining standard instrumentation with a customised software interface."

**Douglas Brown – Project Manager,
Campbell Scientific Ltd**

Solution: a road weather monitoring system

Campbell Scientific supplied a road weather monitoring system that would enable current weather conditions to be observed and, when combined with forecast information, used to predict ice.

Eurotunnel had an older system in place which required upgrading and, after a tendering process, awarded the contract to Campbell Scientific, in preference to the incumbent supplier.

Campbell's system allows for the precise measurement of humidity, air and surface temperature, visibility and wind speed at critical locations and provides automatic warnings of adverse conditions. Road surface data is collected using a series of non-contact infra red and embedded sensors and precipitation type is classified by a present weather sensor

A pre-installation survey was carried out along with site thermal mapping. Campbell's software was then customised to allow individual users to define their own displays, assisting in data analysis. Finally the hardware and software were installed by Campbell engineers. Eurotunnel were also trained on the new system which included new features such as an integral alarm and data sharing between the English and French sides.

Campbell Scientific: *"As part of the solution we provided, route and thermal analysis was undertaken and hot and cold spots were identified."*

Benefits: improved weather data aids informed operational decisions to reduce disruption

Campbell Scientific's system means that Eurotunnel can more effectively track changes in the weather. The array of data that the system provides enables the company to make informed operational decisions, helping to maintain site safety and reduce costly disruption.

Benefits to Eurotunnel:

- > **Potential weather related problems are identified quickly and easily**
- > **Schedule disruption is avoided, improving customer service**
- > **Improved safety on tunnel approaches**
- > **Quicker and more effective decision making, optimising management time**
- > **Historical records kept for future reference**

Outcome: improved decision making through better information

Campbell Scientific's solution has improved Eurotunnel's weather monitoring, allowing them to manage their operations more effectively. As a result, disruption to traffic flow caused by bad weather has been minimised, leading to cost savings and improved customer experience.

About Campbell Scientific

Campbell Scientific is a leading manufacturer of data acquisition products for such applications as structural and geotechnical monitoring, environment and climate monitoring, hydrology and meteorology.

In particular, the company specialises in instrumentation for measuring and recording weather conditions, from data loggers and sensors to complete automatic weather stations. This expertise has resulted in the Met Office selecting Campbell Scientific as its measurement partner for the next 15 years.

A Business Community project providing practical training and insights for local university students



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