

C588 Channel Tunnel Rail Link Environmental Control System

Environmental Control System

The Channel Tunnel Rail Link provides a high speed service from East London to the Channel Tunnel. Ematics were the chosen specialist sub contractor for Tyco Control Systems to provide of the Tunnel Ventilation Control system for the three new tunnels of the Channel Tunnel Rail Link.



Ematics Scope

- Software Design - Yourdon Structured Method
- PLC & SCADA Software development
- RCC Interface Communications Protocol Development
- Operator Training System - Able to simulate actual system offline
- Production of FDS / SDS & Testing Documentation
- Quality Assurance to BS EN 50128
- Software verification and Validation Assurance
- Assurance Audit Support
- All Supporting Documentation
- Training

Key Design Criteria

- High Availability
- Fault Tolerance & Detection
- Dual SCADA Servers – High Availability
- Dual PLC Systems - High Availability
- SCADA to PLC Communications Path Management - High Availability
- SCADA Client / Server Architecture
- Compliance with BS EN 50128

Interface Management

- RCC Signalling Server - Train Position Information (Serial Link)
- RCC Signalling Server - Train ID Information (Serial Link)
- RCC EMMIS Server - Electrical Systems Status Information (Serial Link)
- RCC Information Integrated to SCADA Screens
- PLC to SCADA - TCP/IP Ethernet

The primary function of the tunnel VCS is to supply air or extract air from the tunnels in the event of an incident as well as perform tunnel ventilation during normal train operations. Using Mitsubishi Q Series PLC's at the plant control level and Citect MX4 SCADA system for the operator interface were used. The systems were connected in duty standby arrangement and provided control for monitoring from a number of locations.

All PLC and SCADA software was developed in accordance with mandatory "SIL 3" requirements employing approved configuration management systems and procedures.

Ematics were also responsible for producing all quality assurance documentation and were regularly audited by external auditors as well as our own in house audits and were responsible for all internal testing and developed a number of simulators in order to fully test to the user requirements and gain approval prior to delivery to site.



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