

C553 Lantau and Airport Railway Environmental Control System

Environmental Control System

Lantau and Airport Railway (LAR) links Hong Kong Central Station with the new airport in Hong Kong and is concerned with the safe and efficient transportation of its passengers and goods and consists of tracks, tunnels, stations and ancillary buildings.

The LAR project consists of the development of two new railway lines namely:

- Airport Express Line (AEL)
- Tung Chung Line (TCL)

The contract was to supply and install The Environmental Control System (ECS) controller hardware and software to control and monitor all ECS equipment enabling automatic control of the air conditioning and ventilation of the stations, ancillary buildings and tunnels of the LAR during normal and congested modes of operation and in the event of emergencies.

Scope

Provide ECS using dual redundant PLC's as well as dual redundant SCADA systems at each of the stations. Other provisions were as follows:

- PLC Control System Design
- PLC Control Panel and Manufacture
- SCADA System Design
- Software Design and Development
- Cable Route Design Drawings
- Containment Design Drawings
- Testing and Commissioning
- Interface Management

Interface Management

- Station Wide SCADA System - Provided by 3rd Party
- Signaling System - I/O Interface via PLC
- Building Management Systems - Serial Link
- Intelligent Instruments - Serial Link

The ECS provides different types of control for a number of station scenarios such as:

Normal Operational Control

This the normal day to day control requirement for the station allowing Individual and/or group control to start/stop ECS plant equipment and provide energy management control of station air conditioning plant.

Congested Operation Control

This would result from delay or operational problems which prevent the free flow of trains through the railway system, at which time the ECS would automatically provide additional through the tunnel areas.

Emergency Operation Control

Generally resulting from a fire at a station or in a tunnel. The ECS provides for both automatic and manually initiated station emergency smoke extraction sequences for the tunnel and station areas, in order to minimise risks of damage to property, personal injury and loss of life.



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