



Transport  
for NSW

## Reference material

# Interface Agreement between Signal Engineering and Electrical Engineering

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*This document refers to organisational and positional roles and  
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Authorised by: Chief Engineer Rail, Asset Standards Authority  
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**Interface Agreement**  
  
**between**  
  
**Signal Engineering**  
  
**and**  
  
**Electrical Engineering**

**Version  
Approved**

**Date  
10 August 2010**

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# Interface Agreement between Signal Engineering and Electrical Engineering

**Version  
Approved**

**Date  
10 August 2010**

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## 1 Introduction

This interface document identifies the interfaces between Electrical and Signal Engineering and the responsibilities at those interfaces.

The purpose is to establish clear accountabilities and ensure safety issues are well controlled.

## 2 Section Responsibilities

Electrical Engineering is responsible for the design and standards for overhead wiring and traction systems, and RailCorp's sub-transmission and distribution networks.

Signal Engineering is responsible for the design and standards for signalling systems.

Both groups exist within the Engineering Division of RailCorp. Where a group is identified as 'Major responsibility' that group is the primary approval for the safety of that item.

## 3 Interfaces

### 3.1 General

Interfaces between the section are considered only when an output or requirement from one section directly impacts on the designs of the other.

These interfaces can occur in three general areas, standards, projects (design) and operational.

### 3.2 Standards and Procedures

Once a standard is approved, its use may occur without reference back to the other section, providing the standard is applicable and complied with.

### 3.3 Projects

Individual projects may require direct liaison where the scope of the work may impact the other. The result should be a sign off on the arrangements by both groups.

### 3.4 Operational

Operational Interfaces occur where train operating issues affecting electrical or signals, has an impact on the other.

## 4 Specific Interfaces

### 4.1 Standards and Procedures

Item	Electrical Responsibility	Signal Responsibility
Air Gaps	Standards for Signal Positions and train standing locations	Compliance

Item	Electrical Responsibility	Signal Responsibility
Cable routes and pits	Standards on separation required from signal cables	Standards on separation required from electrical HV & LV cables
Compressed Air Supply	Design and provision of power supply for compressors to Signal Requirement	Standards for generation and reticulation of signalling compressed air supply Standards for electrical supplies qualities to compressors and ancillary equipment
Earthing	Electrical Standards on separation required from signal earths	Signal Standards on allowable EPR and separation required from electrical earths
Electrical Safety Procedures	Electrical safety procedures for Electrical supply system	Electrical safety procedures for signalling electrical system
Location of Signals Equipment	Standards for location of equipment relative to Electrical Infrastructure  Example: Signals location under power lines, etc.	Compliance
Power Supply Quality	Provision of supply to specification requirements	Specification of Signal Requirements
Section Hut Connection	Provision of Section Hut negative busbar	Type and arrangement of Rail connections
Signal Power Supply Standard Arrangements See diagrams in Appendix A and Appendix B for details	Design and Specifications on Supply side of isolation transformer.  Advice on requirements	Design and Specification on load side of isolation transformer  Advice on requirements
Spark Gap	Standards on where provided	Design of rail connection
Traction Bonding on track	Advice on capacity	Design and Specification
Traction Return at Substation	Provision of Busbar	Type and arrangement and number of connections between busbar and rail
'Unwired' signs	Location and provision of configuration control	Sign design only.

## 4.2 Projects

This item includes all items of a project specific nature:

Item	Electrical Responsibility	Signal Responsibility
Air gaps	New and altered positioning to integrate with signal constraints	Advice on signal and train standing locations
	Advice on air gaps positioning	New signals to be positioned clear of air gaps
Compressed Air Supply	Provide electrical supplies and connections to compressors and ancillary equipment to meet Signal requirements Connect alarms to electrical SCADA and panels where required Advise on electrical SCADA requirements	Design of compressors, ancillary equipment and plumbing and electrical control. Provide alarm indications to Control System Provide alarms to EOC system interface when requested
Location of Signals Equipment relative to Electrical Infrastructure	Review and determine compliance Advice on altered electrical arrangements Ensure OHW clear of signals and access by Safe Work distances	Advice on the location of equipment to be installed Ensure signals and access clear of OHW by Safe Work distances
New and altered OHW structure - Signal Sighting	Arrange for sign off on Signal Sighting	Advice on sighting
New and altered OHW structures Spark Gaps	Nominate structure to be spark gapped	Design of rail connections
Power supply system alarms	Provide alarms from UPS and other equipment	Connect alarms to Control System
Power Supply Design See diagrams for details	Design to first isolation transformer Liaison on power supply locations and requirements Design supply equipment consistent with signalling load and specified requirements Nominate maximum and minimum fault level at interface point Note: Design protection consistent with prospective levels of faults on supply side of signalling interface	Design of power supply from and including isolating transformer to signalling equipment Liaison on power supply locations and requirements Note: Select equipment suitable for equipment loadings. Design protection consistent with equipment loads and maximum voltage drop requirements Advice on requirements for power supply quality: voltage stability, harmonic content, availability, maximum interruption length etc
Power Supply Loadings	Design and provision of supply	Advice of loading requirements

<b>Item</b>	<b>Electrical Responsibility</b>	<b>Signal Responsibility</b>
Rail Connections Switches	Requirements and cables	Review compliance and advice Design and connection to rail
Traction Return at Substation	Consult on number and locations of busbar	Advice on number and locations of negative busbars. Design of Rail Connections from busbar

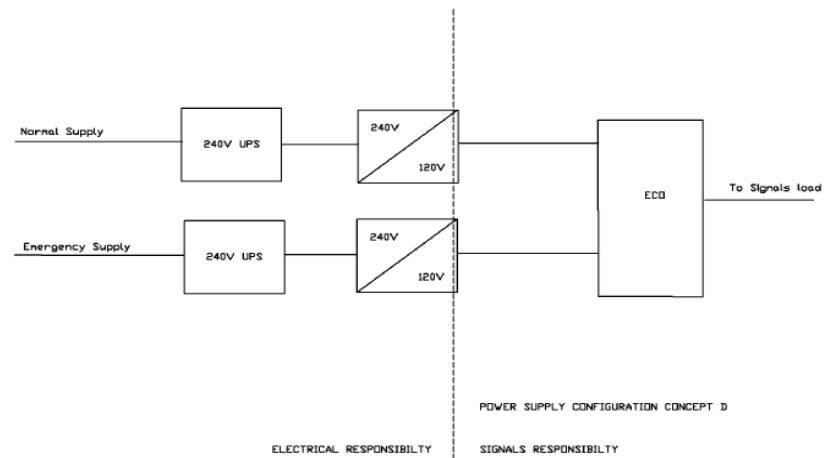
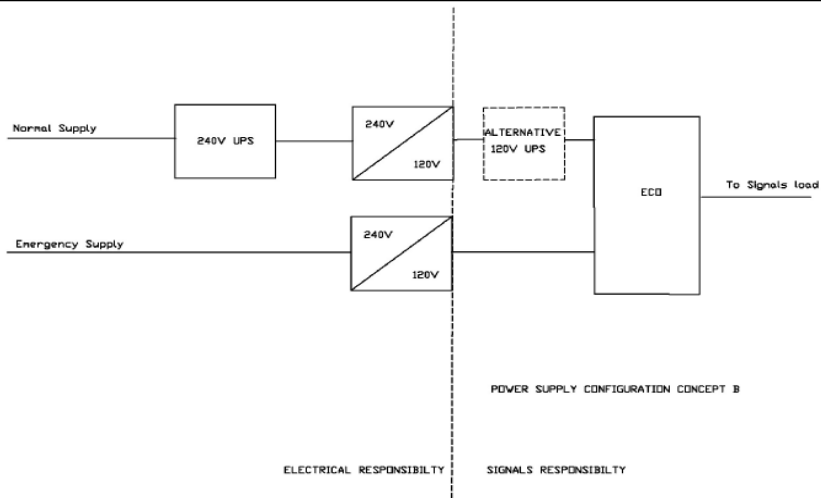
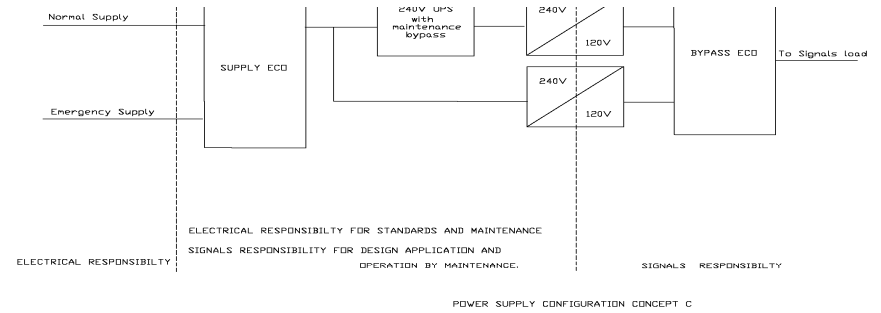
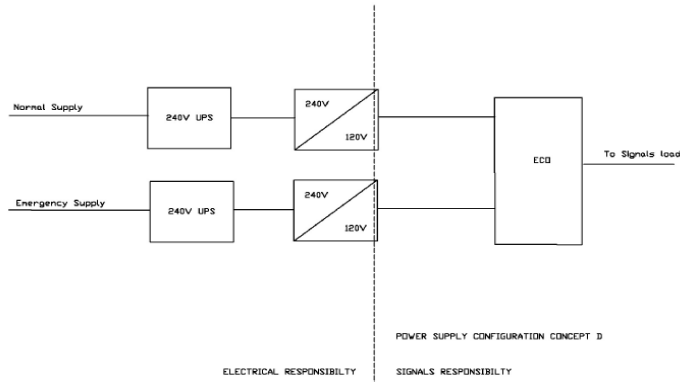
### 4.3 Operational

<b>Item</b>	<b>Electrical Responsibility</b>	<b>Signal Responsibility</b>
Switching of Supplies	Instructions on procedures for switching	Advice of Signalling Impacts



Reference material - for information only

### Appendix A Power Supply Configuration Interface Diagram



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### Appendix B Power Supply Configuration Interface Diagram – Concept E

