TRANSPORT & TECHNOLOGY SYSTEMS

Signalling systems

Complete rail systems infrastructure solutions

Our extensive local engineering and manufacturing capabilities coupled with access to the world's best rail products allows UGL to offer a wide range of signalling products.

Our product and services includes:

- Signal interlocking
- Signal wayside equipment
- Signal control systems
- Train protection systems
- Lightning protection for signalling applications
- Fibre-optic Solid State Interlocking (SSI) Datalink units
- Extensive maintenance and service support

Communication networks

Delivering enhanced driver and passenger signalling information

UGL's team of highly skilled and experienced communications technicians, designers, engineers and project managers deliver technically innovative solutions for:

- Broadcast television and radio
- Electromagnetic Radiation (EMR)
- GSM-R (Global System for Mobile Communications for Rail)
- Microwave links
- Optical fibre networks
- Satellite earth stations
- Telecommunication access and network solutions
- Tunnel communication systems
- Telecommunications

Engineering and design capability

UGL provides engineering services for the telecommunications and broadcasting industries with particular emphasis on RF and optical fibre technologies

We design, build, install and commission complex communication systems and our technical experts advise on the best solutions available to meet the needs of our clients.

Our engineering team is responsible for implementing the selected solution from concept design through to handover of the operational system.

Through-life-support

Signalling &
Communications

South Morang Rail
Signalling and control system upgrade

UGL was contracted to undertake the signalling and train control detail design, supply and installation of Computer Based Interlocking (CBI) equipment, off-site manufacture of location cases, and testing and commissioning.

The project involved track duplications, new train stations, a major upgrade of an existing train maintenance facility, improvement works on pedestrian crossings, the construction of eight new bridges, the development of new car parking spaces and the upgrade of signalling systems.

Key benefits and outcomes:

- The new system ensures a safe journey by avoiding risk of conflict between train paths

- The project's successful completion well ahead of the scheduled date through stakeholder collaboration

- Existing field equipment remained essentially in place, a low technical risk SmartLock SML400 solution lending compatibility and cost effectiveness

- Support of future incremental technology upgrades by modern architecture using backward compatible SmartLock SML400 CBI to support the existing SSI system

- Train control and conflict resolution capability at junctions using an advanced train control system and integrated timetable

BHP Billiton Iron Ore
Extending the life of a network

Multi-disciplinary value add asset management services

UGL is proud of this long-term relationship - the longest serving contractor to BHPBIO.

From installation in mid-1970, UGL has maintained the signaling system on some 700km of BHP Billiton Iron Ore heavy haul railway. From its beginnings as a relay-based interlocking system through to the present day processor-based interlocking with ATP overlay.

Our current contract includes automatic equipment identification, mainline, yard control and hot-box (hot bearing/wheel) detection systems, and provision of essential maintenance services to UGL delivered Dash 8 and AC6000 locomotive fleets.

Midwest Rail Network
Brookfield Rail

Upgrade to allow for increased and larger rail traffic from emerging iron ore mines

Signalling and communications services were provided along with a centralised train control system from Geraldton to Mullewa, a track length of around 110km.

In support of centralised train control; synchronous digital hierarchy,

Plesiochronous Digital Hierarchy (PDH) and voice mobile radio infrastructure were deployed over the route. In addition, MW radio, PDH and voice mobile radio were deployed from Mullewa to Perenjori, a distance of 140km.

UGL constructed, installed and commissioned 15 communication equipment rooms, 13 self-supporting towers, and rebuilt an existing communications equipment room at Narngulu, near Geraldton.

Port Hedland Rail Network
Signalling and communications for Fortescue Metals Group

UGL constructed and commissioned a new rail signalling, communications and Intelligent Train Control System (ITCS). This technology was deployed along the entire 427km of Fortescue's track from Port Headland to Cloudbreak, and the Christmas Creek and Firetail mine sites.

UGL fabricated location cases and retrofitted new in-cab displays for Fortescue's fleet of 52 locomotives and track vehicles.

The project team comprised some 360 management staff, civil construction workers, signal electricians, communications technicians and commissioning personnel.

Scope of works:

- Civil works included boring, pit and pipe, location case foundations, communications mast foundations, solar array foundations

- Communications system installation and testing

- Establishment of concrete batching facilities

- Fabrication and testing of signaling and communications location cases

- Installation and wiring of locations cases

- Logistics management

- Project management

- Site supervision and HSSEQ

- Site-earth and testing

- Solar system installation and testing

- Standing and rigging poles