Control Systems and Automation

Cardno is a specialist electrical engineering consultancy providing professional services to the mining, utilities, materials handling, oil and gas, industrial and petrochemical industries.

Control Systems
Our reputation as a process controls systems specialist is the result of our expertise and track record in a variety of processes across a wide range of plants. This experience allows us to quickly comprehend your process and its variables, and apply our knowledge to optimise the response of your plant to changing conditions. Whether it’s a new project or you need to optimise your existing processes, Cardno can help. We will deliver the improvement you require with simple and effective solutions.

Automation
Our experience encompasses all aspects of automation for existing and new plants. For mobile or fixed equipment, using any proprietary system, we use the latest technology to deliver customised automated systems where cost benefits are highly visible.

Service Range
Large Projects and Process Plants
- Major control systems
- Development projects on PLC/SCADA/DCS platforms

Process Systems and Power Generation
- Support control systems projects for
- Electrical power group PLC/SCADA/DCS
- Control room design

Controls and Automation
- Detection systems
- Profiling systems
- Route sequencing
- Anti-collision
- Robotics
- Stockpile control
- Machine optimisation

OEM Controls
- Generator Controls
- Grinding mills
- Crushers
- Car dumpers
- Reclaimers

Process Optimisation and Modelling
- Process control and simulation
- Expert systems
- Process modelling
- Loop tuning
- Setpoint and multivariable controllers

Networks and Communications
- Network design
- Telemetry
- Microwave systems
- Voice and data radio
- Fieldbus systems
- Comms protocols
- VOIP, CCTV, etc, RFID, GPS, GSM

Production Systems
- Database programs
- Historians
- Web access
- Production reports
- Training simulators
- MES
- Custom solutions

Oil and Gas
- Hazardous area systems
- ESD systems
- SIS systems

Site Support
- Site-based support
- Remote access
- Phone callout systems
Balance Machine Optimisation Project  
Port Hedland, WA, Australia

Fortescue Metals Group commissioned Cardno to undertake electrical and control systems design as part of their Balance Machine Optimisation Project at Anderson Point Port in Port Hedland.

As part of the project, Cardno was required to design, supply, configure, install, test and commission:

> machine stockpile profiling instrumentation;
> redundant machine encoders for ACS long travel, slew and luff;
> 3D HMI for stockyard visualisation;
> stacker infill stacking optimisation using stockpile profile data;
> reclaimer optimisation using stockpile profile data including stockpile setup positioning; and
> upgrade of route sequencing system coding for automatic orebreak calculation and control on shiploading and inloading circuits.

Parcel Sorting Machinery Upgrade  
Kewdale, WA, Australia

Cardno carried out design engineering and program integration to upgrade sorting machinery at Australia Post’s Perth Parcel Centre.

We designed, integrated and commissioned the upgraded equipment to provide a longer lasting facility with better sorting performance.

Our scope included:

> electrical schematic drawings;
> hydraulic ram system control;
> tipping sequence control;
> safety instrumentation for access gates and emergency stops;
> automation instrument design;
> PLC control and documentation;
> operator and technician training;
> system testing and commissioning; and
> machinery safety accreditation.

Million Ounce Plant Upgrade  
Niolam Island, New Ireland Province, Papua New Guinea

Cardno was engaged by Lihir Gold to undertake electrical instrumentation design and control systems integration for a whole-of-plant upgrade at the Lihir Gold Mine. Integration work included the control systems for the power generation, oxygen plant, processing plant, crushing and grinding, and miscellaneous loads, for an Invensys Foxboro IA DCS of over 50000 points.

We were required to:

> design field controller and I/O panels
> design templates for program control of field equipment
> program the operator HMI control
> develop a simulation system for offline code testing
> design the site communications network; and
> undertake site commissioning

About Cardno

Cardno is a professional infrastructure and environmental services company, with expertise in the development and improvement of physical and social infrastructure for communities around the world. Cardno’s team includes leading professionals who plan, design, manage and deliver sustainable projects and community programs. Cardno is an international company listed on the Australian Securities Exchange (ASX: CDD).

www.cardno.com

Cardno is committed to the highest standards of health, safety and environment across all of our business and locations.