

Instrowest was established in 2006 to provide quality instrument and electrical contracting services to the mining and mineral processing industries, with a strong focus upon safety. Instrowest can provide a comprehensive installation, maintenance, calibration, and repair service to all sites within Western Australia. Instrowest can also help in solving any instrument or control related problem that you may be facing.

At Instrowest we are committed to providing reliable, high quality sales and service while maintaining respect, integrity and trust to our clients and those within our organisation. We aim to provide this service by understanding our client's needs, wants and constraints while finding a solution that is fit for purpose.

At Instrowest we will always maintain an innovative approach that sets us apart from others; if a traditional method is not suitable or ineffective, we will endeavor to find an alternative or innovative approach to achieve our client's goals.

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BHP NickleWest – Mt Keith Operations

Dart Valve Upgrade, Remote Mounted Positioners

Instrowest has been providing shutdown assistance to BHP Nickle West at Mt Keith mine for the past 9 years. One of our recurring tasks is to calibrate the dart valves on their flotation circuit. Mt Keith previously had one I/P converter that controlled 4 dart valves, each with a P/P positioner on each bank of cells. Instrowest usually calibrated the I/P converter and then individually calibrated the P/P positioner to check the seating of each dart valve. While this is a thorough and accurate way of calibrating the dart valves, the whole installation and calibration process was time consuming and could be simplified to become more intelligent and reliable.

The previous installation at MKO had been providing BHP with satisfactory results over the years that Instrowest has been providing shutdown support although there have been issues with ongoing reliability between outages due mainly to the age and deteriorating condition of the equipment. Another issue that was causing issues was the "dirty" instrument air quality.

Accessibility issues were also made getting to the positioners difficult with many installed beyond the handrail meaning that scaffold was required just to complete a calibration. If a failure occurred during normal operations the accessibility meant it would normally stay offline until the next outage.

In general the calibration and maintenance of these dart valves was time consuming and expensive and their reliability was becoming an issue.



Instrowest Proposal.

Instrowest came up with a design to help fix these issues by installing the Siemens PS2 smart positioners along with linear potentiometers installed on the actuators of each dart valve to provide exact position feedback. This design removed the need to have pneumatic equipment installed on the actuators and thus reduces accessibility issues previously experienced.

The final part of the proposal would be in improving the instrument air quality; this would be achieved by installing an air dryer and filter before the regulator to the PS2 positioner cabinet.

All the failsafe functions that were previously undertaken by using complex pneumatics would now be controlled within the positioners by utilizing their intelligent functionality due to their micro-processor based design, thus further streamlining the installation and maintenance.

Results

This project resulted in the following benefits:

- The PS2 Positioners are installed in an easily accessible location within a stainless steel enclosure on the catwalk resulting in easy accessibility as well as protection of the equipment from the harsh and corrosive environment.
- Only the airlines and remote feedback potentiometers are installed on the actuator reducing the amount of parts affected by the process and exposure to the elements and atmosphere.
- The PS2 Positioners can be calibrated at the touch of a button, reducing plant downtime and providing a more accurate calibration
- Unlike the previous installation, the PS2 Positioners can provide extended diagnostics and feedback data via HART communications.
- The Air dryer will improve instrument air quality reducing amount of faults caused from "dirty air".

Both Mt Keith and Instrowest were extremely happy with the quality and functionality of the installation with all design criteria met. To date site hasn't experienced any performance issues with the new installation and are looking forward to upgrading the remaining flotation cells in the near future.



If you would like Instrowest to assist with your next project please contact us.

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