

Instrowest was established in 2006 to provide quality instrument and electrical contracting services to the mining and mineral processing industries. 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.

Instrowest Pty Ltd

Phone 08 9500 9120
 Fax 08 9535 6909
 Email admin@instrowest.com.au
 Web www.instrowest.com.au

EC 8070

NLN Lube Temp Upgrade

After successfully completing a number of shutdown maintenance campaigns at BHP Billiton's Leinster Nickel Operations, Instrowest noted that the temperature control switches on the six different lube packs on the SAG mill were unreliable, labour intensive to calibrate and didn't include local indication.

Instrowest saw an opportunity to innovate and improve reliability which in turn would save the client many hours of labour costs and increase the reliability of the switch and potentially save in lost production.

As found, each lube pack incorporated a 'Low' and a 'High' bulb and capillary type thermal switch controlling a lube oil heater and cooling fan respectively through PLC digital inputs. The repeatability of each switch was questionable with non-adjustable hysteresis (dead band) being a contributing factor.

The consequences of these switches failing included:

- Cold lubrication causing a lube pump overload, leading to a mill trip on low oil flow.
- Lubricant becoming too hot and causing breakdown of lubricating qualities, leading to severe equipment damage and subsequent plant downtime.
- Lubricant becoming too hot and causing a mill trip on an over temp fault.

Annual calibration and checks were required to ensure accuracy; this was easily taking between 2 and 4 hours per switch. The lack of a local temperature display and the visual indication of the temperature switch status meant that maintenance personnel were forced to guess the actual temperature when the SAG mill tripped due a lube pack fault.



Above: The old capillary type temperature switches previously installed



After discussions with key site personnel, Instrowest developed a proposal to upgrade the lube pack temperature switches and presented it to BHPB. This detailed a full breakdown of the project, including Introduction and findings of the current installation, recommendations and advantages of improving the current installation, a detailed plan of how Instrowest intended to upgrade the lube oil temperature sensors, and a budget estimate for Instrowest to supply, install and commission the new temperature controllers.

Management at Leinster were pleased with the proposal, immediately seeing the benefits of upgrading the substandard installation. Approval was given to proceed and Instrowest moved swiftly to arrange the logistics of including the project in the next fast approaching shutdown.



The proposal recommended replacing the two bulb and capillary type temperature switches per lube pack with a single RTD and thermowell feeding a local Weidmüller PMX temperature display/controller with configurable relay outputs. The advantages of this setup were numerous and included: local running temperature display, visual indication of switch status and set point, reliability and accuracy of RTD measurement and no dead band in the switching. This resulted in the reduction of labour for maintenance, reducing manning for shutdowns and a more reliable process and quicker fault finding when the plant does go down.

Instrowest completed the upgrade on time and within budget, commissioning the new installation before the end of the scheduled maintenance period.

Before leaving site, key operational and maintenance staff were guided through the installation to ensure onsite familiarity with the changes and to ask Instrowest any questions relating to the install. To date, Leinster site personnel have been happy with the outcome



If you would like assistance, please contact Instrowest.
 email: admin@instrowest.com.au
 or on our website: instrowest.com.au