



## Omron components ensure reliability of upgraded mining fire alarm system

Evolution Electrical is a custom electrical enclosure manufacturer in Saskatoon, Saskatchewan that frequently works on substation power center projects in the mining industry. The substations and electrical panels that the company builds are responsible for powering the machinery, conveyors, pumps and everything else inside the mine.

In a recent project, Evolution Electrical was asked to improve upon the existing fire alarm system of one of its mining industry customers. When activated, the system breaks a bottle to release an odorous substance that circulates within the mine and quickly fills the entire area. When mine employees smell the substance, they know to evacuate or go to a refuge station immediately.

Evolution Electrical had been using Omron relays and limit switches for a long time and had never encountered any problems with reliability. Since reliability is of the essence in any critical safety system, Omron stood out as the ideal option for control panel components.

### Business need

Evolution Electrical needed highly reliable relays and limit switches to build a mechanical fire alarm system for a mining client.

### Unique solution

The company used Omron relays to control actuators that break a glass bottle containing an odorous substance while limit switches verify that the substance has been released.

### Customer benefits

The new system improves employee safety and also allows mining operations to resume more quickly after an alarm has been resolved.

# The solution

## Ultra-reliable relays and limit switches



### The need

The existing alarm system used an explosive fire cap to break the bottles, but this system was cumbersome and slow to reset. People who replaced explosives needed special certification and a significant amount of training to properly set up the bottles. Furthermore, the explosive method made it impossible to maintain two bottles inside one panel. Having a two-bottle system would make it unnecessary to replace a bottle immediately after the alarm is activated.

To reduce the need for specialized certifications and help mining operations get up and running quickly post-alarm, the mining customer wanted to switch to a mechanical system. This would allow each panel to contain two bottles, only one of which would be broken upon activation of the alarm.

### The technology

Evolution Electrical built a new mechanical alarm system using Omron LY2 and MY2K relays and WLCL-TH-N limit switches. The relays power up actuators that push into a glass bottle to break it. The limit switches then monitor the actuators to make sure that they moved far enough to verify that bottle has been broken. Each bottle also carries its own limit switch that can tell if it has fallen into the basket below.

In each panel, there are limit switches on each of the two actuators and one on each bottle, for a total of four per panel. The entire mine contains 80 panels.

### The outcome

Evolution Electrical was pleased with the ease of implementation of the Omron relays and limit switches, which was important given the large number of panels. There have been zero complaints regarding reliability of the Omron technologies.

Prior to the introduction of the new system, the time and effort required to replace a bottle was onerous and frustrating. In contrast, the new mechanical system has been effective in letting the mine resume operations after an alarm has been resolved. The Omron limit switches also give the mining client verification that a bottle actually has broken during an alarm, which is essential for ensuring employee safety.

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