

Machinery Safety and the need to Save Money

It can be a false economy - or potentially dangerous - to try saving money on safety systems, yet careful design can reap rewards.

Given the state of the economy, it is understandable that everyone has to be more careful with their budgets than ever before. But engineers should beware of trying to save money by buying cheaper safety-related products, as it could cost them dear in the long run.

Take the humble safety relay, for example. Two products from different manufacturers may appear to do the same job, or 'near enough' the same job for the new build or maintenance project in hand; however, the cheaper product may not offer everything that the slightly more expensive alternative does. Diagnostic data via LEDs may seem like an unnecessary luxury to the buyer, but the engineering time saved during commissioning - or the downtime avoided in the event of an unplanned stoppage - could cost orders of magnitude more than the relay's purchase price.

Still on the subject of downtime, the mean time to failure (MTTF) of the cheaper product may well be shorter than the MTTF of the higher quality (and slightly more expensive) unit, so it is far more likely to cause unplanned downtime.

Maintenance engineers should also bear in mind that any change from the original equipment specification (such as switching from one safety relay to another from an alternative supplier) should be properly documented.

One of the problems that can be associated with safety-related control systems is nuisance trips. If a lens on a safety light curtain becomes dirty, the safety-related control system does exactly what it is supposed to do and shuts down the machine. However, this stoppage is costly in terms of lost production and can also be detrimental to the quality of any work in progress at the time of the stoppage. Nuisance trips can be triggered by any device within the safety-related control system, but it is fair to say that higher-quality or higher-specification products are less likely to cause nuisance trips than lower-quality or lower-specification alternatives.

So far it has been assumed that all of the safety devices meet the necessary standards. But it also needs to be emphasised that corners must not be cut by installing inadequate safety devices. For example, if a hazardous machine is protected by a physical guard with a uniquely coded electronic guard switch, in the event of the switch becoming damaged it should not be replaced by, say, a simple magnetically-operated guard switch that could be actuated by a standard actuator kept in the maintenance engineer's tool box.

The foregoing is intended to show that penny-pinching on safety equipment is unwise at best and unsafe at worst. Nevertheless, careful design of safety-related control systems can lead to cost savings. For example, the Pilz PNOZsigma slimline multifunctional safety relays can help to cut costs by reducing stockholding and enabling a smaller control cabinet to be specified. For more complex projects, a safety-related control system incorporating a Pilz PNOZmulti modular safety controller can be more cost-effective to design and implement than one using traditional safety relays and complex logic; savings are greater still if multiple machines are being built or planned. Furthermore, both the PNOZsigma and PNOZmulti offer far better diagnostics than conventional safety relays, which benefits machine builders, system integrators and end users.

Pilz has engineers who can assist customers with designing the most cost-effective safety-related control systems, plus the company supplies an extensive range of safety devices at very competitive prices.

Please contact Pilz Australia for more information about safety design services.

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