

TECHNICAL ARTICLE

Machinery safety and the need to save money

It can be a false economy - or potentially dangerous - to try saving money on safety components, yet careful design of safety-related control systems 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.

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

Please contact Pilz to request more information about safety design services by emailing consulting@pilz.co.uk or telephone 01536 460766.

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Contact Points for Publication

Pilz Automation Technology

Telephone: 01536 460766

Fax: 01536 460866

E-mail: consulting@pilz.co.uk

Website: www.pilz.co.uk

Note to editors

Pilz Automation Technology develops, manufactures and supplies process and automation control products for use wherever there is a requirement to ensure the safety of plant, personnel or the environment. Included in the range are: safety relays; configurable safety controllers; programmable safety systems (safety PLCs) for use with or without the SafetyBUS p safe, open industrial fieldbus network; mechanically actuated and non-contact guard switches; safety light curtains; 2D and 3D vision-based safety sensors; emergency stop switches; conventional and touchscreen operator interfaces; plus control and monitoring relays for non-safety applications.

In addition, Pilz provides safety-related services, such as training, engineering, consultancy and competence management. For 20 years Pilz has taken a leading role in educating the market with regard to safety legislation. This has been through seminars on legislation, software packages that assist with standards compliance and product selection, and publications. Pilz has produced six editions of the *Guide to Machinery Safety*, a *Guide to Programmable Safety Systems*, and publishes a free monthly email newsletter

Pilz Automation Technology is a wholly owned subsidiary of Pilz GmbH & Co KG, a family-owned German company with global operations. Since its foundation in 1948, Pilz has remained at the forefront of safety technology, launching the first safety relay the first programmable safety system, the first safe, open fieldbus system (SafetyBUS p), the first solid-state safety 'relay', the first software-configurable modular safety controller, and the first safe camera system for monitoring three-dimensional zones. Future developments will see safety technology being integrated more closely with standard control, such as in servo drives with safety functionality.

Editors should contact Pilz if they would prefer to receive future press releases electronically or by post.

Issued by:

Vanessa Smith
Pilz Automation Technology
Willow House
Medlicott Close
Corby
NN18 9NF

Tel: 01536 462202
Fax: 01536 460866
E-mail: v.smith@pilz.co.uk