

Installing an interlock switch?

Working with machinery can lead to serious workplace injuries. In areas where operators are required to access and interact with machinery safeguarding is extremely important, but often confusing. This article is intended to help you select the appropriate interlocking switch for your machinery, access needs, and level of risk.

Interlock switches are one of the most commonly used electronic safeguarding devices. These switches are normally used to monitor the position of a movable guard (e.g. a door or gate) and signal the safety system to control power of the hazardous motions within the safeguarded space whenever a guard is in the open position.

With a wide range of interlock switches available in today's market, it can be difficult to select a safe and cost effective solution for an application. Here are some important factors to take into consideration prior to installing an interlock switch.

1

Cost – Always an important consideration, however, there are several other factors one should consider prior to selecting an interlocking switch.

2

Machine stopping time – Some pieces of equipment have high inertia, fast rotating parts, high-pressure systems, or raised loads. These components may require time to come to safe stop. The time lapse between the time an interlock switch is activated, and the time at which the equipment has reached a safe state is an important variable.

3

Operators – The ways in which people are required to interact with the equipment must be identified. How often they will be required to access the area and whether full body entry beyond the guard will affect the best type of interlock for the application.

4

Possibility of failure – Could failure of a switch go unnoticed? Will workers accessing the safeguarded space be able to tell if the hazardous motion has stopped? When accessing machinery with continuous motion, it is easy to tell that the motion has stopped. In cases where the machinery has periodic movements, or internal hazards that are not within the line of sight from the access point, it may be more difficult to tell whether or not the machine has stopped.

5

Wear and tear – The wear and tear of a switch is often more significant than one would expect. Misaligned doors or use of excessive force may cause the switch to be damaged or broken.

Mechanical or Non-Contact Switches?

The closure of an interlocked switch should not be used as an automatic restart of the equipment in most cases.

If the access point protected by the movable guard does not permit full body access, and the machine can only be accessed by entry through interlocked guards, automatic reset may be permitted under rare and very specific circumstances.

| | Mechanical Key Switches | Non-Contact Switches | Guard Locking Switches |
|-------------------------------|--|--|---|
| Cost | Usually the least expensive switches | Cost varies but is usually more expensive than mechanical switches | Usually the most expensive switches |
| Machine Stopping Time | Good option for machines with short stopping times. | Good option for machines with short stopping times. | Best option for machines that take a long time to stop |
| Operators | Opening and closing the switch usually requires more effort and time. | Physically easier to open for frequent access | Unlocking function will delay opening time |
| Possibility of Failure | Key breaking off inside the switch may go unnoticed | Probability of failure is lower | Unlocking function will delay opening time |
| Wear and Tear | May experience significant wear and tear in areas where large, heavy doors with misalignment issues are used | Provide more flexibility in terms of alignment | Safety rated non-contact guard locking switches are now available, which provide more flexibility in terms of alignment |

Installing an interlock switch device triggers the need for a Pre-Start Health and Safety Review in Ontario. If you are unsure of which switch would be best for your needs, would like more information, or would like to schedule a Pre-Start Health and Safety Review, contact us to book a consultation.

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