**Overview**

The electromechanical safety switches with separate actuator (AZ) as well as the electromechanical solenoid interlocks (AZM) are designed for use with movable guards which must be closed for operator safety. The AZ and AZM devices are used in all areas of production and in almost all types of machine tools. The design offers advantages particularly where routine access to the hazard area is necessary for purposes of machine actuation, fault clearance or set-up.

The AZM solenoid interlocks have been designed to prevent sliding, hinged and removable safety guards from being opened before hazardous conditions (e.g. run-on movements from rollers, chains, shafts etc.) have been eliminated.

Redundant mechanically linked Positive-Break contacts of the AZ and AZM allows these devices to be used in even the highest safety classifications as called out by ISO 13849 and IEC 61508. The AZi and AZMi variants also offer unique actuator coding to fulfill High level coding requirements per ISO 14119.

### Safe Signals to Unlock a Guard locking Device

The monitoring for a safe state of a machine which will trigger the unlock signal to a locking device can be achieved by a variety of different practices. Some of the more common methods include the monitoring of a rotating part. Zero speed is established once the revolutions have been reduced to a predetermined nonhazardous frequency. Another method is monitoring the back electromagnetic force (EMF) directly off of a motor. An EMF reading in the low millivolt range from the line voltage will represent a safe state for opening a guard. If the time it takes for the residual hazards of the machine to abate is constant, a fail-to-safe timer can also be utilized.

**Available Literature**

GK-1 Full Product Catalog

Section 1