

THE GATEKEEPERSM

MAN-MACHINE SAFEGARDING NEWS FROM **SCHMERSAL**
Turning Workplaces into Safeplaces®

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GK-1, GK-C,

EN ISO 13849-1

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Safe Speed Control

European harmonized C-standards, such as DIN EN 12417, define two operating modes in which a machine is generally equipped with: automatic and set-up. When a machine is engaged its production process, or in other words performing its actual purpose, it is said to be running in mode 1 or automatic mode. In this instance all safety guards are closed and secured. Set-up mode or mode 2 is used for adjustment activities, i.e. tool replacement or a size change. During this time the safety guards are opened and the machine is running at significantly reduced speeds.

However, manufacturers and operators have expressed the need for additional possibilities of operating speeds for particular set-up and parameter setting tasks. As a result, amendment 1:2006 to DIN EN 12417 allows for "extended manual intervention" known as mode 3. Applications using this mode are taken into consideration in a clause under Appendix I of the new Machine Directive (2006/42/CE: 1.2.5: "Selecting the control and operating modes"). In this situation use of an enabling switch allows an operator to activate a limited number of machine functions at speeds higher than mode 2.

There are intervention situations however that require the operator to use both hands and for the process to run at speeds near automatic mode 1. "Process observation", or mode 4, enables running the machine with safety guards open and without the continuous actuation of an enabling device. One main difference between mode 3 and mode 4 is that the maximum limits for rotation speeds and feed rates are prescribed in mode 3, whereas in mode 4 the limits are determined by the application needs. Although this fourth mode has been accepted by legislative bodies, it has not yet been addressed in any standards. Nonetheless, the framework for this mode has been defined by the technical committee *Machine Building, Production Systems and Steel Construction*.

REFERENCE



Guard locking systems for protection of man and machine

A supplement to our main catalog containing a safety guide book on safe speed control and solenoid interlocks. 60 pages.

View the PDF catalog: [Click here.](#)



GK-1 Catalog 9th Edition

Our main catalog containing technical data sheets for all products, a safety tutorial handbook, and a reference section. 424 pages.

View the GK-1 catalog online:
www.schmersalusa.com.

Safe Speed Control Products

Schmersal offers an ever increasing range of products designed to protect workers from the hazards of dangerous motion:

Modular, Programmable Drive Monitoring System

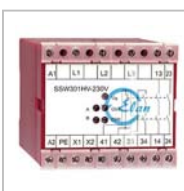


PDMS

The PDMS is a flexible system for the safe monitoring of drives. This system monitors the signals from encoders, resolvers, or proximity switches to detect rotary and linear movement in a safe manner. The system offers a variety of input cards in which the drive speed to be monitored can be individually programmed. Multiple and even different input cards can be combined with a safety output module in a housing that can be mounted on a standard DIN rail. **More ►**

Fail-To-Safe Standstill Monitors

Standstill monitors provide for the fail-safe registration of machine standstill and control of safety solenoid interlocks on safety guard doors.



SSW 301HV / AZR31S1

The SSW301HV is a sensor-free standstill monitor that is directly connected to a three-phase motor and measures the frequency of the inducted voltage up to 690 VAC. On standstill of the motor the enabling paths close. The unit is equipped with light-emitting diodes to indicate the operating conditions and provides three safety outputs and one signaling output. **More ►**

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REFERENCE



GK-C Catalog 2nd Edition

The Schmersal condensed catalog and overview of product lines. 12 pages.

View the catalog online:
www.schmersalusa.com



A New Approach to Machine Safety: EN ISO 13849-1

An overview of the new European Safety Standard that defines Performance Levels. 52 Pages.

View the guide online:
www.schmersalusa.com.

SAFE SPEED CONTROL PRODUCTS Continued from page 1



FWS

The FWS range of standstill monitors evaluate the impulses produced by rotating movement in inductive proximity switches or incremental shaft encoders. When the recorded sequence of impulses falls below the limiting frequency, the enabling paths close. FWS range standstill monitors are equipped with Integral System Diagnostics (ISD) for fast and simple recognition of faults. The user receives information regarding the switching condition of the standstill monitor and sensor by means of multi-function LED. A variety of units are available with different safety and signaling outputs. **More ►**

Fail-to-Safe Timer



AZS

The AZS fail-safe delay timer provides for the secure measurement of a pre-set time. The enabling signal for the control system is only given when the present time has elapsed which then makes it possible to open a guard device. AZS range fail-safe delay timers are often used where dangerous situation can occur after a machine has been switched off, e.g. because of running -down movements. **More ►**

Solenoid Latching Keyed Interlock Switches



AZM161, AZM170, AZM200, AZM415, TK, TZ, and TZK.

Schmersal offers a wide variety of solenoid-latching keyed interlock switches to lock machine guards. These switches not only detect the closed safety guard, but provide a lock to prevent the guard from opening until the hazardous motion has abated. The switches come in power-to-lock and power-to-unlock versions and many have optional emergency releases to prevent workers from being trapped inside the hazardous area. **More ►**

Control Devices



TG Door Handle & AZM 200-2568

Pushbuttons and other control devices are often used to signal the system to shut down and unlock the safety guards. The TG door handle and the AZM200-2568 solenoid latching switch have integrated pushbuttons for this purpose. **More ►**

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FAQs: Frequently Asked Questions

Q: What is Safe Speed Monitoring?

A: Unlike standstill applications where zero-speed needs to be detected, safe speed monitoring is the monitoring of spindle or axle drives of a machine to assure that hazardous speeds are not reached during various machine operations. Movement is detected using encoders, resolvers or two proximity switches. For example, during maintenance, you would not want a printing press to be running at full speed, but you also do not want a complete shutdown of machine operations. For instances such as this, safe speed monitoring devices will monitor the drive under maintenance to prevent it from achieving hazardous speeds.

More FAQs at our website: www.schmersalusa.com