

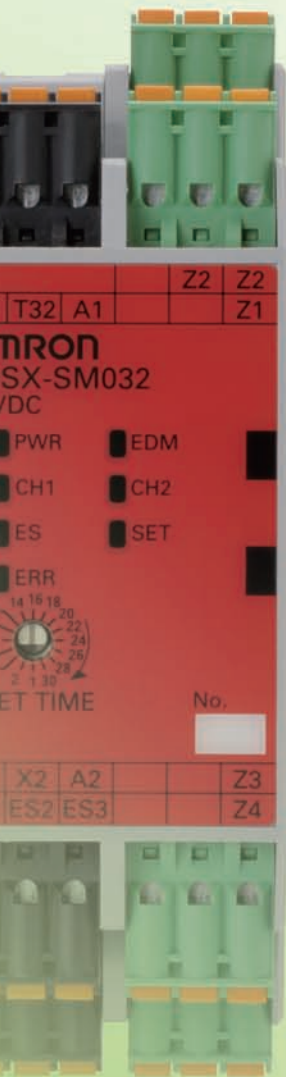
G9SX-SM
G9SX-LM



OMRON



Better Productivity by Standstill and
Low-speed Monitoring

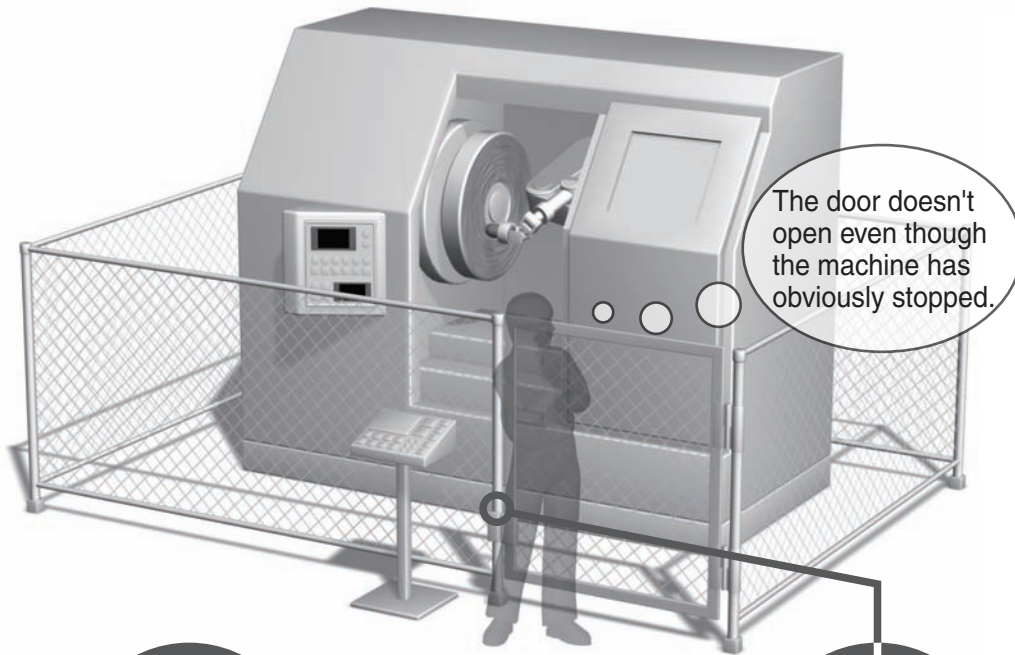


realizing

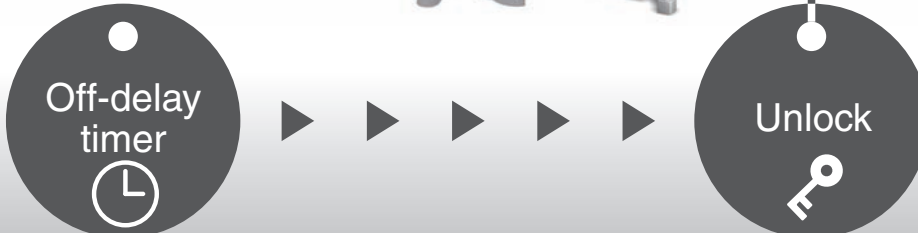
Standstill Monitoring Reduces Extra Waiting Time During Work

Problem

When a hazardous part has a long inertia, door-lock control using an off-delay timer results in extra waiting.



Waiting is a waste of time.

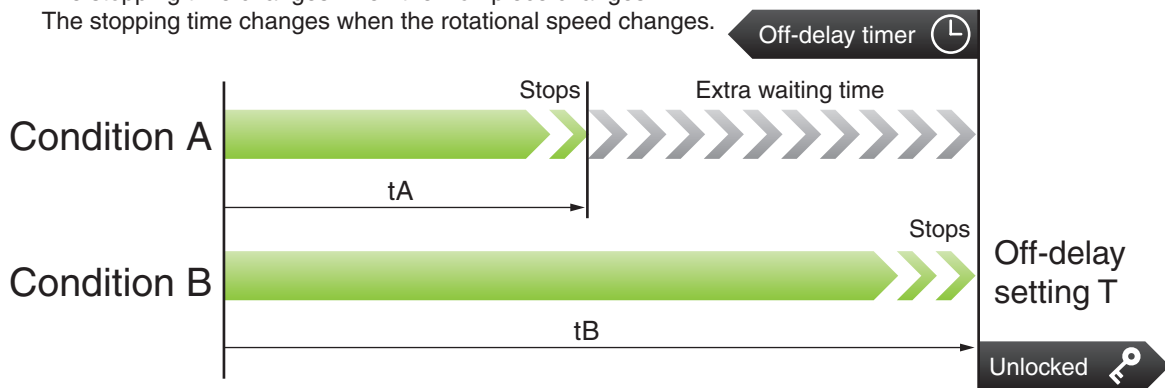


When the time required for a hazardous part to stop varies with different conditions, the off-delay had to be set with an extra margin of time.

Examples:

The stopping time changes when the workpiece changes.

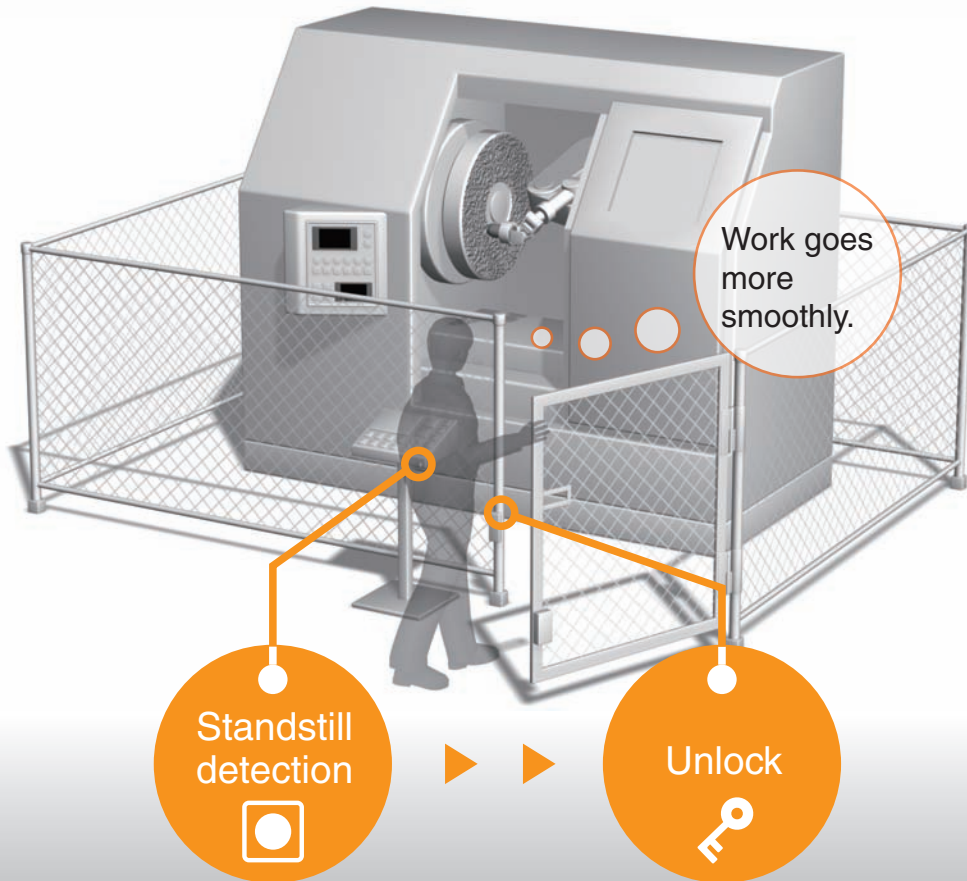
The stopping time changes when the rotational speed changes.



T must be set as follows: $T > tB > tA$

Solution

Extra waiting time is reduced by monitoring the motor's movement, then unlocking the door as soon as the motor stops.



Waiting time is reduced.

Productivity improved!

G9SX-SM Requiring No Sensor

PLe/Safety Category 4 (ISO13849-1)

Can also be used with inverter control applications.

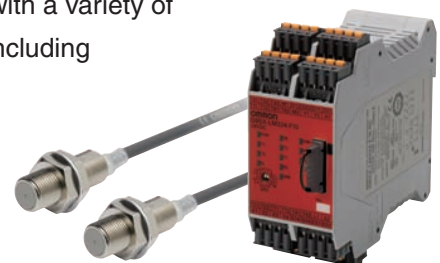
* Cannot be used for Servomotors.



G9SX-LM Using Proximity Sensors

PLd/Safety Category 3 (ISO13849-1)

Can be used with a variety of applications, including Servomotors.



Complies with Global Safety Standards

Standstill and low-speed monitoring are required by international standards for machine tools, printing presses, and other applications. The G9SX Series can reliably be used in these applications, due to its certification for various safety standards.

The G9SX-SM meets PLe/Safety Category 4 (ISO13849-1) requirements, and the G9SX-LM meets PLd/Safety Category 3 (ISO13849-1) requirements.



Easy Setting with No Sensor Required

Standstill can be detected even when there is no space to install a sensor.

PLe/Safety Category 4
(ISO13849-1)

No Sensor Required

Detection of BEMF generated by the motor eliminates the need to install a sensor.

1

Ready to use "Standard Configuration"

User Configuration also available for fine-tuning.

2

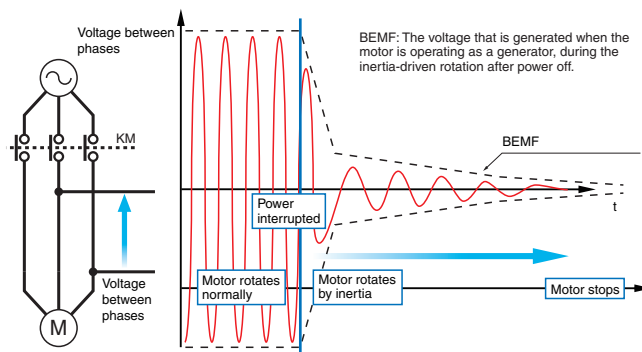
With Inverters

Applicable to inverter controlled systems.

3

1 No Sensor Required

The G9SX-SM detects the back electromotive force (BEMF) that is generated when the motor rotates in order to determine whether the motor is rotating or in standstill condition. Because the BEMF value varies with the motor revolution, the G9SX-SM determines that the motor has stopped when it detects that the BEMF has fallen below a set criterion.



2 No Complicated Settings Required

You can start monitoring by simply connecting the G9SX-SM system in Standard Configuration without any sensitivity adjustment.

Standard Configuration ▶

Connect 

Start monitoring 

With the "User Configuration", sensitivity can be manually adjusted for each machine.

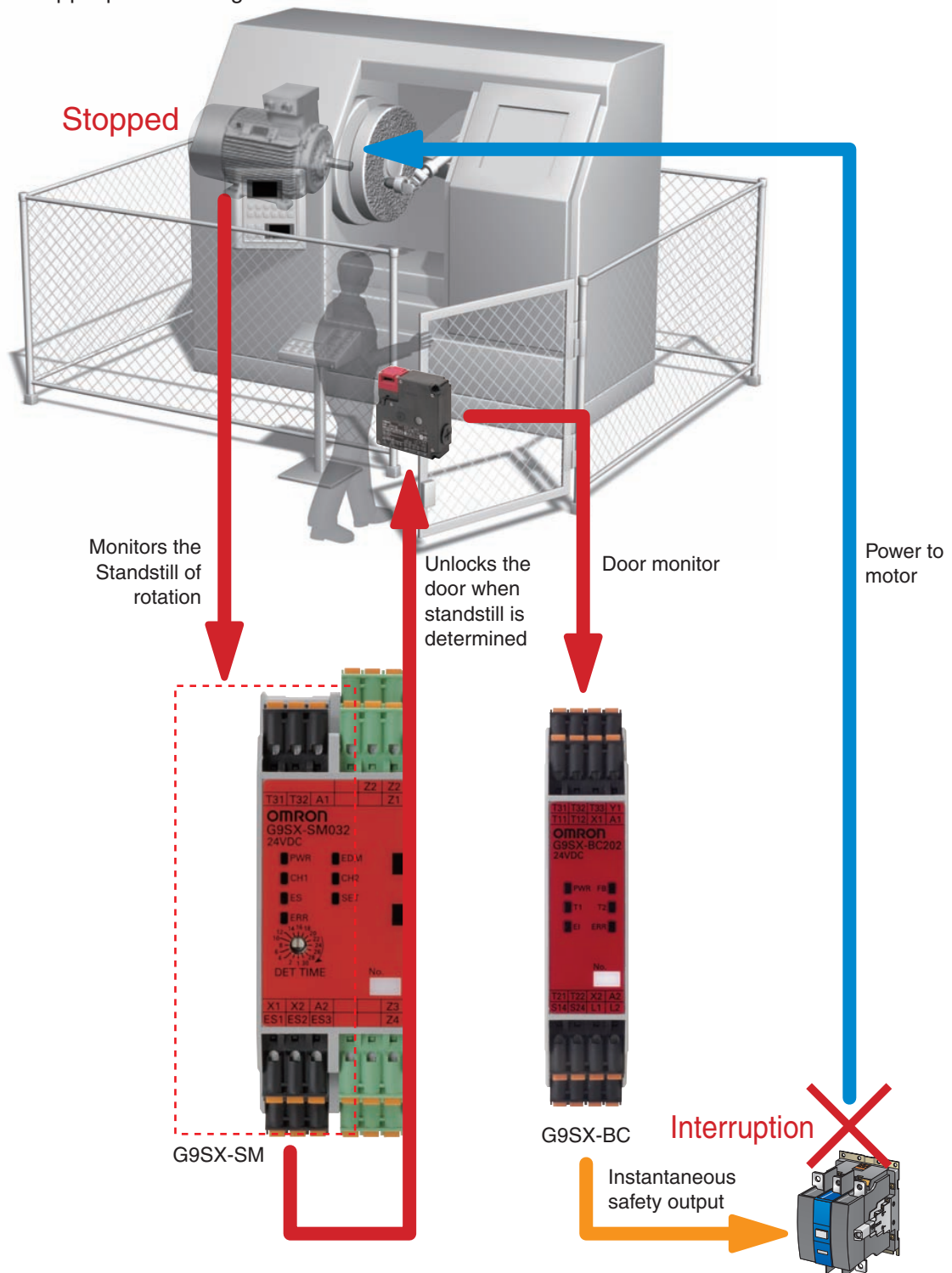
3 With Inverters

The G9SX-SM can be used with an inverter, without resulting in malfunctions due to the inverter's dynamic brake or auto-tuning functions.



System Configuration

This system detects that the machine has stopped, and unlocks the door with the appropriate timing.



Direct Monitoring with Proximity Sensors

Applicable to Various Systems,
Including Servomotors

PLd/Safety Category 3
(ISO13849-1)

Monitoring with Proximity Sensors

Combination of general-purpose proximity sensors and the fault diagnosis of G9SX provide a Category 3 system.

1

Low-speed Monitoring

In addition to standstill monitoring, the G9SX-LM features a low-speed monitoring function for maintenance work.

2

Applicable to Servomotors

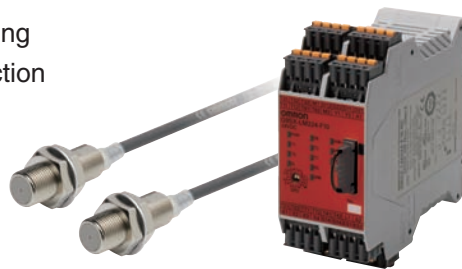
Because rotation is directly monitored with sensors, the G9SX-LM can be used with any motor type or control method.

3

1 Monitoring with Proximity Sensors

A redundant safety system can be configured by using two E2E Proximity Sensors. The fault diagnosis function of the G9SX-LM provides a high level of safety.

* Use only the DC 3-wire PNP type E2E.

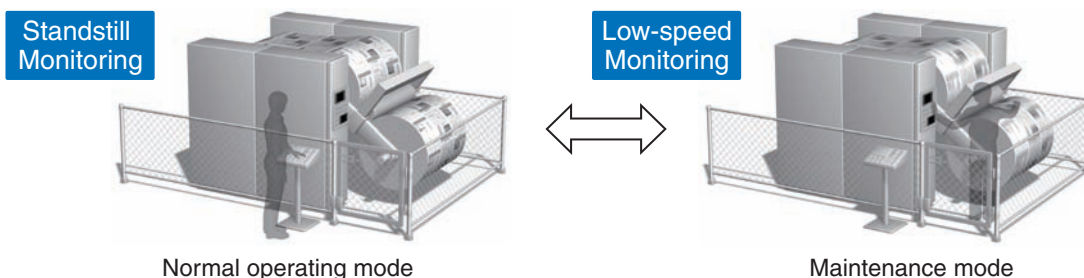


PLd/Safety Category 3
(ISO13849-1)

2 Speed Monitoring Matched to the Function for Each Operating Mode

In normal operating mode, standstill is monitored to unlock the door.

In maintenance mode, low-speed operation is monitored to allow maintenance work.



3 Applicable to Servomotors

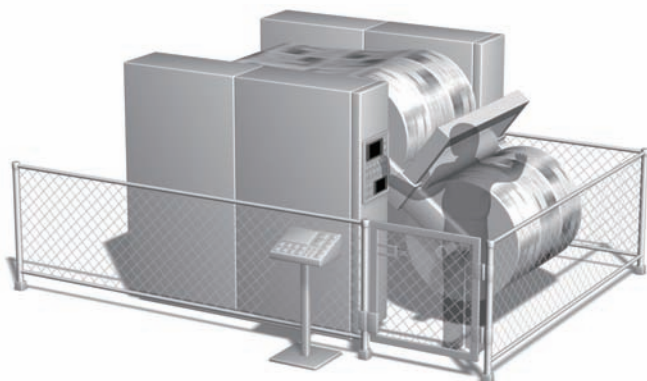
Because the drive rotation is directly monitored, the G9SX-LM can also be used with Servomotors.



For details, refer to G9SX-LM Datasheet.

Problem

Achieving safety during maintenance work.



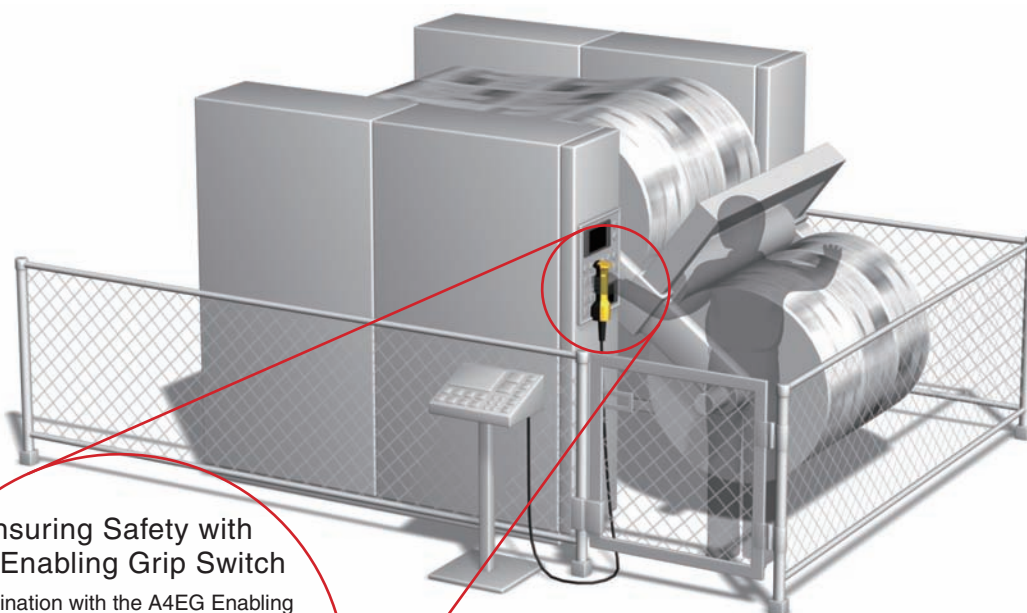
The machine must sometimes be operated for irregular operations, such as maintenance.



Is the operator's safety assured?

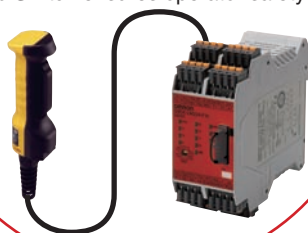
Solution

Operate the machine at low speed, and monitor the speed.



Ensuring Safety with the Enabling Grip Switch

Combination with the A4EG Enabling Grip Switch ensures operator safety.



In order to ensure operator safety...

1 Operate the machine with the Enabling Grip Switch.



2 Monitor that the machine is operating below the preset speed.



3 If the speed exceeds the preset value, stop the machine immediately.

If the Enabling Grip Switch is pressed or released, stop the machine immediately.

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CSM_6_1_1017
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