SM-Safety Option Module

Drive Based Functional Safety PLC

For Unidrive SP and Digitax ST Drives & Servos

NEW

Improving safety, enhancing productivity

Control Techniques' SM-Safety option module provides an intelligent, programmable solution to meet IEC 61800-5-2 functional safety standard. It fits within the drive helping to reduce cabling and requires no cabinet space or external power supply.

Safety that allows you to do more

Until now, the integrity required to meet safety requirements has limited the functionality of many machines. Usually simple logic is applied, such as, if a guard is open, the machine stops. When combined with robust processes to quantify risk, Control Techniques SM-Safety module can free designers to create new and innovative solutions. Machines can intelligently interact with people while increasing human protection and safety resulting in enhanced machine productivity.

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CONTROL TECHNIQUES

EMERSON
Industrial Automation

Standard Safety Functions

The following high speed* safety functions, defined by IEC 61800-5-2 are available with SM-Safety:

Safe Torque Off	STO	Prevents torque from being generated by the motor. This function is integrated within the drive itself as standard
Safe Stop 1	SS1	Initiates motor deceleration and Safe Torque Off function after a specified time delay. In the event of any fault, Safe Torque Off is initiated
Safe Stop 2	SS2	Initiates and monitors the deceleration of the motor. At standstill, or after a programmable delay, the Safe Operating Stop function is applied
Safe Limited Speed	SLS	Prevents the motor from exceeding a programmable speed limit
Safe Limited Acceleration	SLA	Monitors the acceleration and deceleration rate to ensure a specified value is not exceeded
Safe Limited Position	SLP	Monitors absolute position to ensure the machine operates within specified limits
Safe Brake Control	SBC	Provides a safe output signal to control an external safety brake
Safe Operating Stop	SOS	All controlling functions (torque, speed, and position) remain active, ensuring the motor remains stopped, resisting external forces such as a hanging load on a crane
Safe Direction	SDI	Ensures that the motor can only move in the specified direction
Safe Limited Increment	SLI	Limits the distance the motor can travel in a single motion
Safe CAM	SCA	While the motor is located in a specific area or position range, a safe output signal is activated
Safe Speed Monitor	SSM	Provides indication when the motor speed is below a given limit

*The reaction time to activate the safety function never exceeds 8ms.

Flexible programming environment

FREE Software

CTSafeLite

CTSafeLite is a free configuration tool with fixed function blocks that allow access to all safety functions within the SM-Safety. Parameters are configured to match the application, for example, if the Safe Limited Speed (SLS) function is used, the speed limit can be set.

CTSafePro

CTSafe Pro unlocks the full safe PLC functionality within the SM-Safety module. It allows users to combine elements to develop their own safety function blocks to meet the specific needs of more advanced applications.

CE RoHS Compliant

Safety Standards

The module is designed to meet the following safety standards:

- **IEC** and **EN 61508**: Functional safety of safety-related electric, electronic and programmable electronic systems
- **IEC** and **EN 62061**: Safety of machinery, Functional safety of safety-related electrical, electronic and programmable electronic control systems
- **ISO** and **EN ISO 13849-1**: Safety of machinery - Safety-related parts of control systems - Part 1: General principles for design
- **IEC** and **EN 61800-5-2**: Adjustable speed electrical power drive systems - Part 5-2: Safety requirements - Functional