sens:Control – SAFE CONTROL SOLUTIONS

PRODUCTS AT A GLANCE

**Safety controllers, safety relays,
safe series connection**

SICK
Sensor Intelligence.

sens:Control – SAFE CONTROL SOLUTIONS

As well as focusing on increasing productivity, intelligent machine design also delivers optimum quality and safety. sens:Control – safe control solutions from SICK meet these requirements.

The product portfolio includes safe series connection, safety controllers and safety relays. The products feature easy commissioning, modularity and optimum integration into automation processes — for optimum interaction between human and machine.

Intelligent product combinations for more intelligence

sens:Control – safe control solutions from SICK are the bridge between safety sensors and complete system solutions. Intelligent product combinations increase the range of functions of the sensor systems. As a result, they optimize processes in many applications in a way that would not be possible with individual components.

System solutions from SICK feature easy commissioning and modularity as well as perfectly harmonized interaction between sensor systems and logic.

Enabling Industry 4.0 with sens:Control

Provide, visualize, evaluate and use reliable data in real time:
Safety controllers from SICK let you connect to all standard automation systems, no matter if you need simple access to error and status information for quick trouble-shooting or targeted and remote diagnosis for reducing service work and supporting predictive maintenance. sens:Control from SICK makes you ready for your Industry 4.0 application.

Flexible safety concepts for the future

With Flexi Line and Flexi Loop, sens:Control offers forward-thinking safety solutions when it comes to both technology and economics.

With the Flexi Line safe communication concept, modular machines can be easily networked using safety technology. The focus is on flexible and easily adaptable configuration.

The Flexi Loop safe series connection enables series connection of safety switches and other safety sensors within a machine while maintaining the highest performance levels. Cuts costs, supports diagnostics and is flexible.

Safe Motion – safe movement monitoring

Safe Motion enables innovative concepts in safety technology. All movements are safely monitored at all times. The interaction of safety controllers and encoders with motor feedback systems makes it possible to draw an exact distinction between the machine movements that are dangerous and those that are safe.

If there is no risk, it is possible to access the machine even during ongoing processes. Unintended shutdowns are prevented, which shortens cycle times, increases availability and raises productivity.

➜ **www.sick.com/safe-motion**

ON THE SAFE SIDE IN EVERY SITUATION WITH SICK

For more than 65 years, safety solutions from SICK have offered people valuable protection. As one of the world's technology and market leaders for intelligent sensors in industrial automation, we possess extensive knowledge for equipping machines and plants in a wide range of different industries. This expertise serves as our basis for creating innovative custom safety systems and concepts that meet tomorrow's requirements today while providing our customers with sustainable competitive advantages.

The benefits of sens:Control – safe control solutions from SICK at a glance

Complete solutions from a single source

Products, services and expertise in the field of safety guarantee future-proof success.

Increased productivity

Prevention of unintended shutdowns, shorter cycle times and shorter periods of downtime due to intelligent safety concepts.
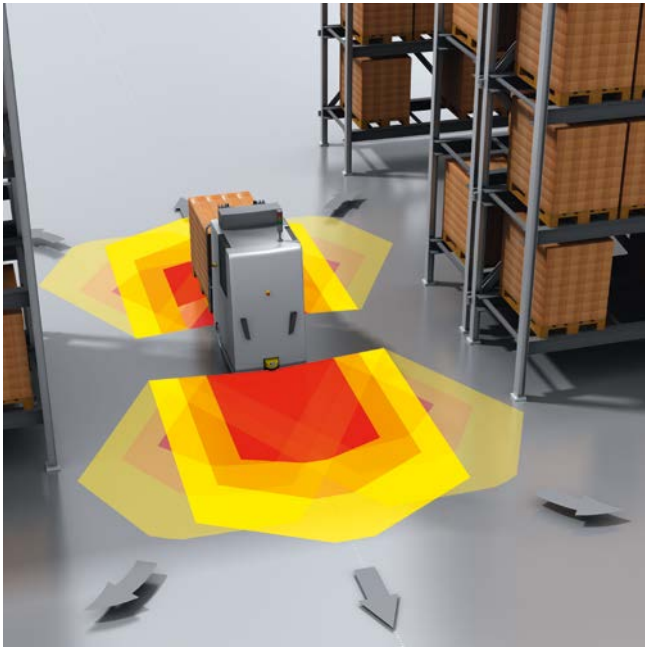
Cost benefit

Reduced implementation and installation work as a result of coordinated safety components from SICK.

Simplified certification process for plants

Safety components or complete safety solutions from SICK have already been certified by external bodies.
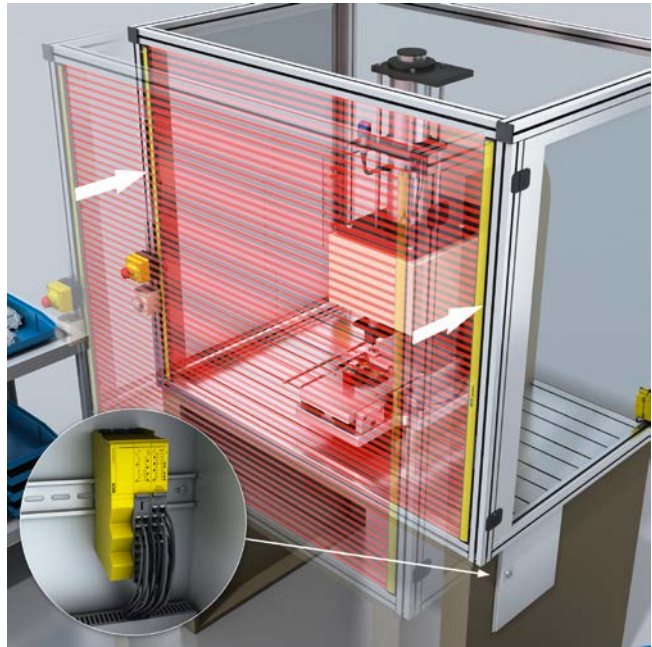
Flexi Soft: Protection of automated guided vehicles

⊕ Increased productivity through efficient protective field. switching depending on the steering angle and the speed

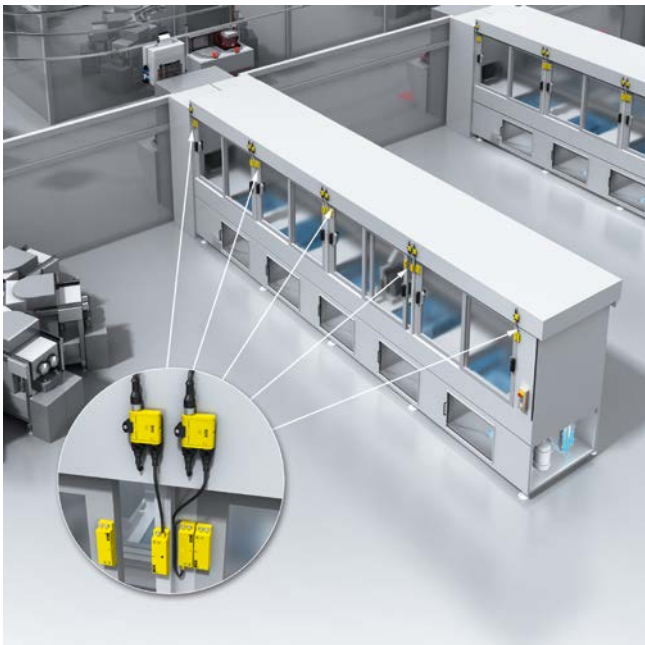⊕ Increased safety through adjusting the speed depending on the load weight.

www.sick.com/Flexi_Soft

Protection of compact machines

⊕ Shorter cycle times and increased productivity through fast response time and reduced safety distances.

⊕ Optimized usability thanks to intuitive Safety Designer configuration software and user-friendly housing.

www.sick.com/Flexi_Compact

Flexi Loop: Safe series connection of sensors

⊕ Minimized downtime, thanks to detailed diagnostics of the connected sensors.

⊕ Quick and easy integration of safety sensors.

www.sick.com/Flexi_Loop

ReLy: The right safety relay for any application

⊕ Short response times for efficient operation and narrow housing for space-saving installation.

⊕ Quick selection of the right relay thanks to clear variant designation by sensor type and application.

www.sick.com/ReLy

Product	Sensor types						Characteristics		
	Opto-electronic protective devices	Safety switches	Safety command devices	Encoders	Pressure sensitive mats	Two-hand control units	Configuration via rotary switch	Configuration via software	Modular system
Safety controllers									
Flexi Soft	■	■	■	■	■	■		■	■
Flexi Compact	■	■	■	■	■	■		■	■
Flexi Classic	■	■	■	■	■	■	■		■
Safety relays									
ReLy	■	■	■			■			
Speed Monitor				■			■		
Standstill Monitor							■		
Safe series connection									
Flexi Loop	■	■	■						■

	Function												Drive safety functions			
	External device monitoring (EDM)	Path for external device monitoring (EDM)	Manual reset	Automated reset	Contact expansion	Fieldbus integration	Presence Sensing Device Initiation (PSDI)	Muting	SICK device communication via EFI/EFI-pro	Safe networking of Stations	Flexi Loop compatible	Safe analog value monitoring	Standstill monitoring	SS1, SS2, SOS, SBC	SSM, SLS	SDI, SLP, SCA
	■		■	■	■	■	■	■	■	■	■	■	■	■	■	■
	■		■	■	■	■		■			■					
	■		■	■	■	■		■		■	■					
	■	■	■	■	■											
	■		■	■									■		■	
	■		■	■									■			

SS1 = safe stop 1
SS2 = safe stop 2
SOS = safe operating stop

SBC = safe brake control
SSM = safe speed monitor
SLS = safely-limited speed

SDI = safe direction
SLP = safely-limited position
SCA = safe cam

	Flexi Soft	Flexi Compact	
	The software-programmable safety controller	Compact, easy and efficient	

Technical data overview

	Flexi Soft	Flexi Compact	
Safety integrity level	SIL3 (IEC 61508) SILCL3 (EN 62061)		
Category	Category 4 (EN ISO 13849)		
Performance level	PL e (EN ISO 13849)		
Configuration method	Via software		
System construction	Modular 1 system plug 1 main module 0 … 2 gateways 0 … 12 expansion modules 0 … 8 relay modules	Modular 1 main module 0 … 12 expansion modules (of which maximum 1 gateway)	
Fieldbus, industrial network	EtherNet/IP™, Modbus, PROFINET, EtherCAT®, PROFIBUS DP, CANopen, DeviceNet™, CC-Link	PROFINET, EtherCAT®	
Safe SICK device communication	EFI	–	
Safe networking	Flexi Link Flexi Line	–	
Safe drive monitoring	✔	–	
Flexi Loop-compatible	✔	✔	

At a glance

	Flexi Soft	Flexi Compact	
	• Safety controller with modular hardware platform • Configuration saved in the system plug • Safe controller networking with Flexi Line • Safe series connection with Flexi Loop • Safe drive monitoring • Safe analog value monitoring • Flexi Soft Designer license-free configuration software	• Software-programmable safety controller with modular hardware platform • High performance Safety over EtherCAT® backplane bus • User-friendly housing in a slim design • Intuitive Safety Designer configuration software • Data communication in common fieldbus systems • Safe series connection with Flexi Loop	

| Detailed information | ➜ www.sick.com/Flexi_Soft | ➜ www.sick.com/Flexi_Compact | |

Flexi Classic

Efficient and easy-to-use safety controller

SIL3 (IEC 61508)
SILCL3 (EN 62061)

Category 4 (EN ISO 13849)

PL e (EN ISO 13849)

Via rotary switch / hard wired

Modular
1 main module
0 ... 11 expansion modules
0 ... 8 relay modules
0 ... 1 gateways

EtherNet/IP™, Modbus, PROFINET,
PROFIBUS DP, CANopen, DeviceNet™

–

Global emergency stop

–

✔

- Rotary switch for easy function adjustment
- Modular extension possible
- Direct wiring for all types of sensors
- Logic functions: AND, OR, muting, bypass, reset, EDM
- Integration into all common fieldbuses
- Integration of the Flexi Loop safe sensor cascade
- Special muting modules are able to meet all the requirements of a demanding muting application

➜ www.sick.com/Flexi_Classic

	ReLy
	Rely on safety relays from SICK

Technical data overview

Applications	Output expansion module for OSSDs / evaluation unit
Safety integrity level	SIL3 (IEC 61508) SILCL3 (IEC 62061)
Category	Category 4 (EN ISO 13849)
Performance level	PL e (EN ISO 13849)
Sensor monitoring	Sequence monitoring Discrepancy monitoring Cross-circuit detection
Configuration method	–
Typical response time	12 ms
Drive safety functions	–
Number of enable current contacts	4
Encoder interface	–
Housing width	18 mm

At a glance

- Safety relays for monitoring ESPE and safety switches
- Up to PL e (EN ISO 13849), SIL3 (IEC 61508)
- Up to 4 safety outputs and short response times
- Slim, user-friendly housing
- Plug-in terminals
- Diagnostics via status LEDs and application diagnostic outputs

Detailed information	➜ www.sick.com/ReLy

	Speed Monitor	Standstill Monitor
	Optimal safety protection in maintenance mode	Standstill monitoring without additional sensors

	Speed Monitor	Standstill Monitor
	Motion Control	
	SIL3 (IEC 61508)	
	SILCL3 (EN 62061)	
	Category 4 (EN ISO 13849)	
	PL e (EN ISO 13849)	
	–	
	Via rotary switch	
	–	
	Standstill SLS, SSM	Standstill
	–	
	Proxy A/B incremental encoder, HTL 12 V or 24 V	Motor voltage measuring
	22.5 mm	45 mm

Speed Monitor
- Zero-speed and drive monitoring
- 4 safe semiconductor outputs
- Maximum input frequency of 2 kHz
- Adjustable monitoring limit/monitoring frequency from 0.1 to 9.9 Hz or 0.5 to 99 Hz
- 2 application diagnostic outputs for failure and status display
- Diagnostic LEDs

Standstill Monitor
- Standstill monitoring by means of residual voltage measurement
- 3 normally open and 1 normally closed positively guided safety contacts
- 2 application diagnostic outputs for semiconductors
- 1 application diagnostic output normally open
- Maximum motor supply voltage 690 V
- Adjustable voltage threshold and standstill period

→ www.sick.com/Speed_Monitor

→ www.sick.com/Standstill_Monitor

Flexi Loop

Cost-saving and safe series connection with diagnostic function

Technical data overview	
Safety integrity level	SIL3 (IEC 61508) SILCL3 (EN 62061)
Category	Category 4 (EN ISO 13849)
Performance level	PL e (EN ISO 13849)
Suitable for	Flexi Classic Flexi Soft
Safety device connection	For safety sensor with dual-channel OSSD outputs For dual-channel equivalent electro-mechanical safety switch (EMSS)
Structure of a Flexi Loop cascade	Modular 1 ... 32 Flexi Loop nodes 0 ... ∞ Flexi Loop accessory nodes 1 Flexi Loop terminator
Enclosure rating	IP65 (EN 60529) IP67 (EN 60529)
Ambient operating temperature	–25 °C ... +55 °C

At a glance

- Series connection of 32 sensors with up to 100 m per segment in compliance with performance level PL e
- Compatible with sensors from all manufacturers
- Detailed diagnostic information
- Integrated standard inputs and outputs
- Voltage supply for sensors is included
- Unshielded standard cable featuring M12 connectivity
- IP65 and IP67 enclosure rating
- Intelligent accessories for field diagnostics and commissioning

Detailed information	➜ www.sick.com/Flexi_Loop

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SERVICES FOR MACHINES AND PLANTS: SICK LifeTime Services

Our comprehensive and versatile LifeTime Services are the perfect addition to the comprehensive range of products from SICK. The services range from product-independent consulting to traditional product services.

Consulting and design
Safe and professional

Product and system support
Reliable, fast, and on-site

Verification and optimization
Safe and regularly inspected

Upgrade and retrofits
Easy, safe, and economical

Training and education
Practical, focused, and professional

SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 10,000 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, SICK is always close to its customers. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents, and preventing damage to the environment.

SICK has extensive experience in various industries and understands their processes and requirements. With intelligent sensors, SICK delivers exactly what the customers need. In application centers in Europe, Asia, and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes SICK a reliable supplier and development partner.

Comprehensive services round out the offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

That is "Sensor Intelligence."

Worldwide presence:

Australia, Austria, Belgium, Brazil, Canada, Chile, China, Czech Republic, Denmark, Finland, France, Germany, Great Britain, Hungary, Hong Kong, India, Israel, Italy, Japan, Malaysia, Mexico, Netherlands, New Zealand, Norway, Poland, Romania, Russia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sweden, Switzerland, Taiwan, Thailand, Turkey, United Arab Emirates, USA, Vietnam.

Detailed addresses and further locations ➔ **www.sick.com**

SICK
Sensor Intelligence.