PRODUCT OVERVIEW

sens:Control – SAFE CONTROL SOLUTIONS

PRODUCTS AT A GLANCE

Safe series connection, safety controllers, safety relays

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.

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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 Control – safe movement monitoring

Safe Motion Control 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.

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.

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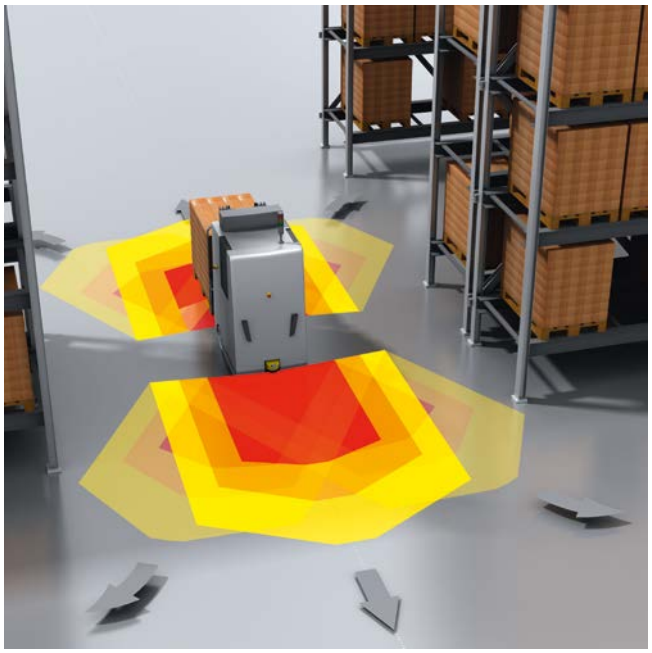


Flexi Soft: Protection of automated guided vehicles

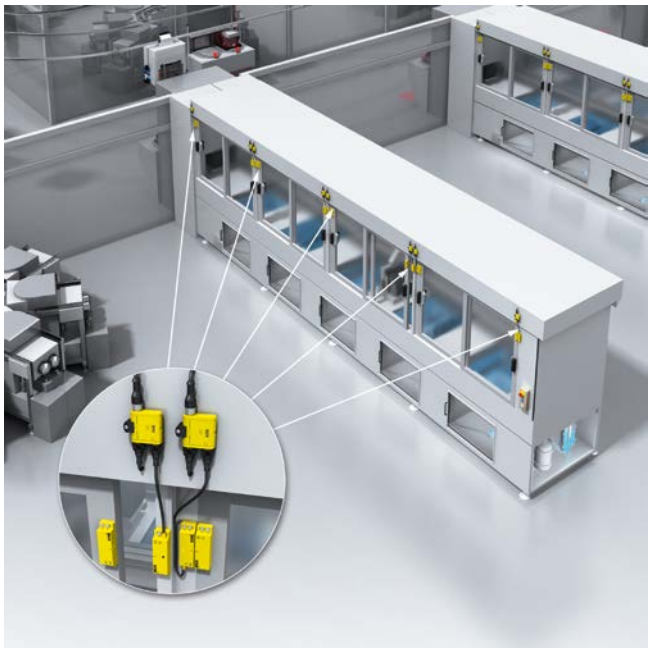
- Increased productivity through efficient protective field switching depending on the steering angle and the speed
- Increased safety through adjusting the speed depending on the load weight

www.sick.com/Flexi_Soft

Flexi Classic: Protection of safety doors

- Compact solution with optimal integration of various safety sensors
- Easily configurable access protection with rotary switch

www.sick.com/Flexi_Classic



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: Hazardous point protection on a press

- Short response times and therefore increased productivity through short cycle times
- Low space requirements, thanks to narrow housing

www.sick.com/ReLy

Product	Sensor types						Features			
	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	Fieldbus integration
Safe series connection										
Flexi Loop	■	■	■						■	
Safety controllers										
Flexi Classic	■	■	■		■	■	■		■	■
Flexi Soft	■	■	■	■	■	■		■	■	■
Safety relays										
Speed Monitor							■			
Standstill Monitor							■			
ReLy	■	■	■			■				
UE23-3MF		■	■							
UE43-3MF		■	■							
UE43-3AR		■	■							
UE43-4AR		■	■							
UE44-3SL		■	■							
UE45-3S1		■	■							
UE48-3OS	■	■	■		■					
UE10-4XT										
UE11-4DX										

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Function										Drive safety functions											
External device monitoring (EDM)	Path for external device monitoring (EDM)	Manual reset	Automated reset	PSDI mode	Muting	Safe SICK device communication via EFI	Safe networking of stations	Flexi Loop-compatible	Contact expansion	Standstill monitoring	Safe stop 1 (SS1)	Safe stop 2 (SS2)	Safe operating stop (SOS)	Safe speed monitor (SSM)	Safely-limited speed (SLS)	Safe direction (SDI)	Safe brake control (SBC)	Safe cam (SCA)	Safely-limited position (SLP)	**Enabling current paths (with contact)**	**Signaling current paths (with contact)**
																				–	–
■		■	■		■		■	■	■											–	–
■		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	–	–
■		■	■							■				■	■					–	–
■		■	■							■										3	3
■	■	■	■																	2	1
■		■	■																	3	1
■		■	■																	3	1
■			■																	3	1
■			■																	4	0
■		■	■																	3	0
■		■	■																	3	0
■		■	■																	3	0
	■								■											4	2
	■								■											4	2

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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	 **Flexi Classic**	 **Flexi Soft**
	Efficient and easy-to-use safety controller	The software-programmable safety controller
Technical data overview		
Safety integrity level	SIL3 (IEC 61508) SILCL3 (EN 62061)	SIL3 (IEC 61508) SILCL3 (EN 62061)
Category	Category 4 (EN ISO 13849)	Category 4 (EN ISO 13849)
Performance level	PL e (EN ISO 13849)	PL e (EN ISO 13849)
Configuration method	Via rotary switch / hard wired	Via software
System construction	Modular 1 main module 0 ... 11 expansion modules 0 ... 8 relay modules 0 ... 1 gateways	Modular 1 system plug 1 main module 0 ... 2 gateways 0 ... 12 expansion modules 0 ... 8 relay modules
Fieldbus, industrial network	EtherNet/IP™, Modbus, PROFINET, PROFIBUS DP, CANopen, DeviceNet™	EtherNet/IP™, Modbus, PROFINET, EtherCAT®, PROFIBUS DP, CANopen, DeviceNet™, CC-Link
Safe SICK device communication	–	EFI
Safe networking	Global emergency stop	Flexi Link Flexi Line
Safe drive monitoring	–	✔
Flexi Loop-compatible	✔	✔
At a glance		
	• 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	• 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
Detailed information	➜ www.sick.com/Flexi_Classic	➜ www.sick.com/Flexi_Soft

	Speed Monitor	Standstill Monitor	ReLy
			
	Optimal safety protection in maintenance mode	Standstill monitoring without additional sensors	Rely on safety relays from SICK
Technical data overview			
Applications	Motion Control	Motion Control	Output expansion module for OSSDs / evaluation unit
Safety integrity level	SIL3 (IEC 61508) SILCL3 (EN 62061)	SIL3 (IEC 61508) SILCL3 (EN 62061)	SIL3 (IEC 61508) SILCL3 (IEC 62061)
Category	Category 4 (EN ISO 13849)	Category 4 (EN ISO 13849)	Category 4 (EN ISO 13849)
Performance level	PL e (EN ISO 13849)	PL e (EN ISO 13849)	PL e (EN ISO 13849)
Sensor monitoring	–	–	Sequence monitoring Discrepancy monitoring Cross-circuit detection
Configuration method	Via rotary switch	Via rotary switch	–
Typical response time	–	–	10 ms
Drive safety functions	Standstill SLS, SSM	Standstill	–
Number of enable current contacts	–	–	2
Encoder interface	Proxy A/B incremental encoder, HTL 12 V or 24 V	Motor voltage measuring	–
Housing width	22.5 mm	45 mm	18 mm
At a glance			
	• 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 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	• Safety relays for monitoring ESPE and safety switches • 2 safety outputs, fast response time of 10 ms • Slim housing • Plug-in terminals • Diagnostics via status LEDs and application diagnostic outputs
Detailed information	**→ www.sick.com/Speed_Monitor**	**→ www.sick.com/Standstill_Monitor**	**→ www.sick.com/ReLy**

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	UE23-3MF	**UE43-3MF**	**UE43-3AR**
	Connection solution for safety switches and emergency stop pushbuttons	Complete monitoring of safety switches and emergency stop pushbuttons	Fast monitoring of safety switches
	Evaluation unit	Evaluation unit	Evaluation unit
	SILCL2 (EN 62061)	SIL3 (IEC 61508) SILCL3 (EN 62061)	SIL3 (IEC 61508) SILCL3 (EN 62061)
	Category 3 (EN ISO 13849)	Category 4 (EN ISO 13849)	Category 4 (EN ISO 13849)
	PL d (EN ISO 13849)	PL e (EN ISO 13849)	PL e (EN ISO 13849)
	–	Sequence monitoring Discrepancy monitoring Cross-circuit detection	Sequence monitoring Cross-circuit detection
	–	–	–
	–	50 ms	–
	–	–	–
	3	3	3
	–	–	–
	22.5 mm	45 mm	22.5 mm
	• Ideal for the connection of emergency stop pushbuttons and safety switches • 3 safety outputs, 1 application diagnostic output • Manual or automated reset • External device monitoring (EDM) • Coded version for all slots	• Evaluation unit for emergency stop pushbuttons and safety switches • Cross-circuit detection and sequence monitoring at the dual-channel input signal • Discrepancy time monitoring is possible • 3 safety outputs, 1 application diagnostic output • Manual or automated reset • External device monitoring (EDM)	• Evaluation unit for safety switches • Cross-circuit detection and sequence monitoring at the dual-channel input signal • 3 safety outputs, 1 application diagnostic output • Automated reset • External device monitoring (EDM) • Coded version for all slots
	➜ www.sick.com/UE23-3MF	➜ www.sick.com/UE43-3MF	➜ www.sick.com/UE43-3AR

	 **UE43-4AR**	 **UE44-3SL**	 **UE45-3S1**
	Safety relay with four safety outputs for monitoring safety switches	Compact safety relays for applications with mechanical locking switches	Safety stop via time delay
Technical data overview			
Applications	Evaluation unit	Evaluation unit	Evaluation unit
Safety integrity level	SIL3 (IEC 61508) SILCL3 (EN 62061)	SILCL3 (EN 62061) SILCL2 (EN 62061)	SILCL3 (EN 62061) SILCL2 (EN 62061)
Category	Category 4 (EN ISO 13849)	Category 4 (EN ISO 13849) Category 3 (EN ISO 13849)	Category 4 (EN ISO 13849) Category 3 (EN ISO 13849)
Performance level	PL e (EN ISO 13849)	PL e (EN ISO 13849) PL d (EN ISO 13849)	PL e (EN ISO 13849) PL d (EN ISO 13849)
Sensor monitoring	Sequence monitoring Cross-circuit detection	Sequence monitoring Cross-circuit detection	Sequence monitoring Cross-circuit detection
Delay time	–	✔	✔
Typical response time	–	–	25 ms
Number of enable current contacts	4	3	3
Housing width	22.5 mm	22.5 mm	22.5 mm
At a glance			
	• Evaluation unit for safety switches • Cross-circuit detection and sequence monitoring at the dual-channel input signal • 4 safety outputs • Automated reset • External device monitoring (EDM) • Coded version for all slots	• Ideal for the evaluation of safety switches with mechanical interlocking • Cross-circuit detection and sequence monitoring at the dual-channel input signal • 2 N/O contacts for a direct integration into a machine environment • 1 N/O contact for magnetic release, time delayed up to 30 s • Manual or automated reset • External device monitoring (EDM) • Coded version for all slots	• Ideal for evaluating emergency stop pushbuttons and safety switches • Cross-circuit detection and sequence monitoring at the dual-channel input signal • 2 N/O contacts for direct integration into a machine environment • 1 N/O time for stop category 1 applications, time delayed up 30 s • Manual or automated reset • External device monitoring (EDM) • Coded version for all slots
Detailed information	➜ www.sick.com/UE43-4AR	➜ www.sick.com/UE44-3SL	➜ www.sick.com/UE45-3S1

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	UE48-3OS	UE10-4XT	UE11-4DX
			
	Safety relay with 3 safety outputs for all common safety applications	Contact expansion for all safety relays	Time-delayed contact expansion for all safety relays
	Evaluation unit	Contact expansion	Contact expansion
	SIL3 (IEC 61508) SILCL3 (EN 62061)	SIL3 (IEC 61508) SILCL3 (EN 62061)	SIL2 (IEC 61508) SILCL2 (EN 62061)
	Category 4 (EN ISO 13849)	Category 4 (EN ISO 13849)	Category 3 (EN ISO 13849)
	PL e (EN ISO 13849)	PL e (EN ISO 13849)	PL d (EN ISO 13849)
	Sequence monitoring Cross-circuit detection	–	–
	–	–	✔
	–	–	–
	3	4	4
	22.5 mm	22.5 mm	22.5 mm
	• Ideal for the evaluation of emergency stop pushbuttons, safety switches, safety light curtains, safety laser scanners, and safety pressure sensitive mats • Cross-circuit detection and sequence monitoring at the dual-channel input signal • 3 safety outputs • Manual or automated reset • External device monitoring (EDM) • Coded version for all slots	• Contact expansions enable four additional safety outputs for evaluation units in the safety relays product family group • 4 safety outputs, 2 application diagnostic outputs • Feedback path for external device monitoring (EDM) • Coded plugs for all slots	• Contact expansions enable four additional safety outputs for evaluation units in the safety relay product family group • 4 safety outputs, 2 application diagnostic outputs • Predefined time delays • Feedback signal for external device monitoring (EDM) • Coded type for all plug-in positions
	➜ www.sick.com/UE48-3OS	➜ www.sick.com/UE10-4XT	➜ www.sick.com/UE11-4DX

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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.

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Verification and optimization
Safe and regularly inspected

Upgrade and retrofits
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Training and education
Practical, focused, and professional

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SICK AT A GLANCE

SICK is a leading manufacturer of intelligent sensors and sensor solutions for industrial applications. With more than 8,000 employees and over 50 subsidiaries and equity investments as well as numerous agencies worldwide, we are always close to our 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.

We have extensive experience in various industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our 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 us a reliable supplier and development partner.

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

For us, 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

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