Safe Control Solutions
for an Intelligent Machine Design

sens:Control – safe control solutions

SICK
Sensor Intelligence.

safetyPLUS® – we solve safety problems

Safety solutions from SICK increase your security of investment, open up new potential for savings due to more efficient processes, and always remain focused on the primary objective – the safety of man and machine.

Rock-solid safety concepts for perfect operational safety

safetyPLUS® provides a unique range of competencies for the safety of man and machine. After all SICK is the world's leading manufacturer of industrial safety systems and convinces with an impressive combination of competence, products and services.

Water-tight system solutions for complete safety applications

Behind safetyPLUS® is the world's most versatile product portfolio: A comprehensive safety package from safety switches through optoelectronic sensors to safe control solutions and networks. Simple and trouble-free in application from planning to worldwide usage.

## Unlimited potential for savings due to integrated safety concepts

The unique cost-effectiveness of safetyPLUS® saves time and money! This starts with the uncomplicated planning and carries on through installation and commissioning to the actual production. Every SICK technology is as easy as possible to use and will also be up to date in five years time.

Complete safety by means of services for every day

The safetyPLUS® services: SICK experts advise and assist from the first plant walk-through, during the risk assessment and all the way to the CE assessment – always compliant with the latest standards and directives, and with the SICK inspection seal for machinery and systems. By the way: Every year SICK performs more than 10,000 safety inspections worldwide.
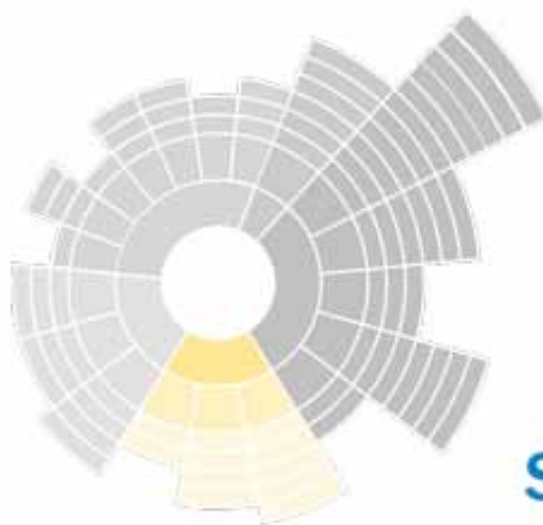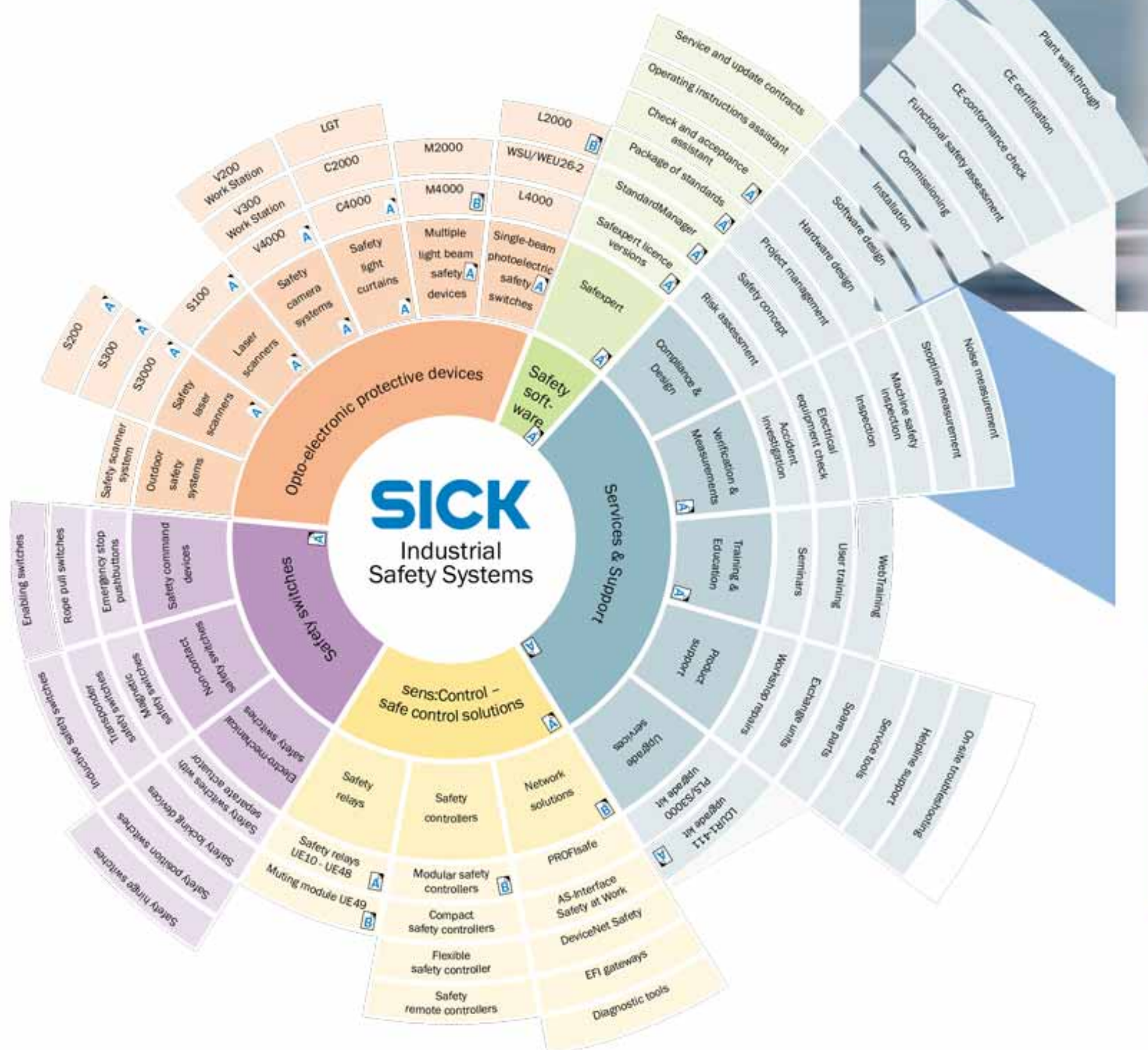
Service you can depend on

With SICK you will always obtain optimal results in the interaction between man and machine.

With SICK you have, in this sensitive area, a partner at your side whose innovations have been setting international standards for more than 60 years; most recently with safetyPLUS®, the all-round package for industrial safety.

SICK Industrial Safety Systems

Simple, quick commissioning

- Either:
  Configuration using intuitive user software

- Or:
  Parameterization via screwdriver

Modular and adaptable

- Flexible number of inputs/outputs
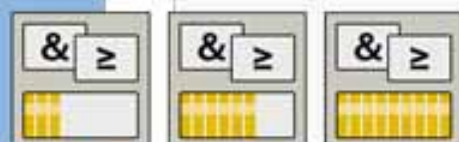
- From simple to complex logic

- Modular expandability

Optimal sensor integration

- More functionality via SICK EFI (Enhanced function interface) connection

Platform independent integration
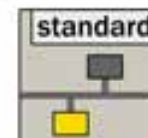
standard

- Into standard networks

safety

- Into safety networks

Additional features
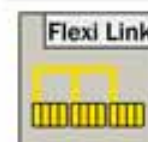
Flexi Link

- Flexi Link: Networking of up to 4 Flexi Soft stations

- Motion Control – safe drive monitoring

sens:Control –
safe control solutions at a glance
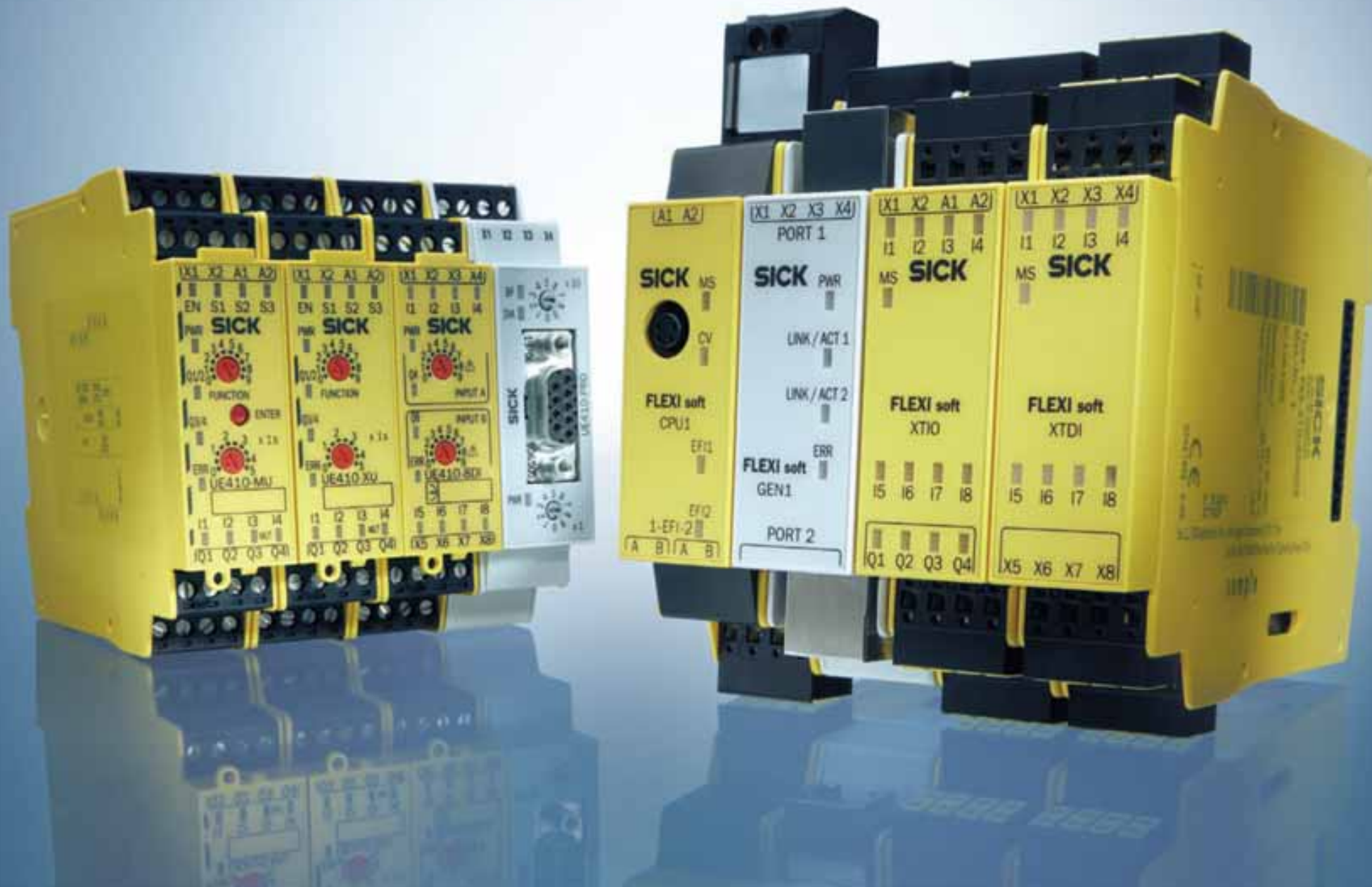
sens:Control – Safety where and when you need it

Safety solutions for machine and plant must deliver more than 'only' safety from risk of accident - today it is increasing important to offer additional usefulness in the area of automation.

The sens:Control portfolio with safety relays, safety controls and network solutions meets these demands. The modularity and the lean software tools offer an optimum safety solution for today's machines and plants which must deliver more.

From an application perspective, safety solutions have to be so flexible and simultaneously so easy to create and configure, that the basic project can be set up, tested and integrated into the automation world.

Safety relays

- Reliable and robust
- Minimized wiring effort
- Fast device exchange using pluggable terminals
- Compact, space saving form factor
- Application oriented models available

Flexi Classic

- Simple configuration via screwdriver
- Logical connection and compatibility with all sensors
- Modular construction: The controller grows with the application (8 ... 104 I/Os)
- Simple realization from the planning up to a complete wiring diagram with the Flexi Classic Configurator

Flexi Soft

- Programmable via the intuitive and easy-to-use Flexi Soft Designer
- Function block based logic editor
- Modular construction: The controller grows with the application (12 ... 144 I/Os)
- Safe networking using the Flexi Link feature
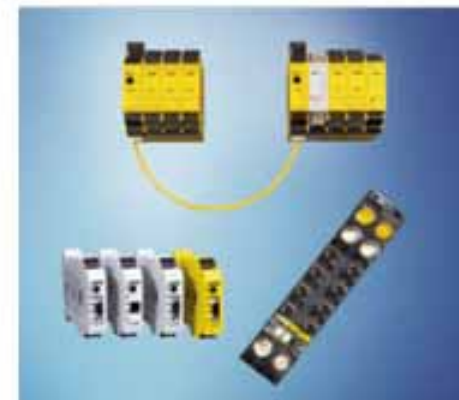
Network solutions

- Simple integration of the safety solution into the automation network (standard and safety data)
- Complete programming, configuration and diagnostics over the network
- Safe linking of up to 4 Flexi Soft stations
- Integration of your safety solution in all common automation systems

Motion Control

Motion Control – safe drive monitoring from SICK
More about the new portfolio → Page 18

You can find more information about sens:Control at

www.sens-control.com
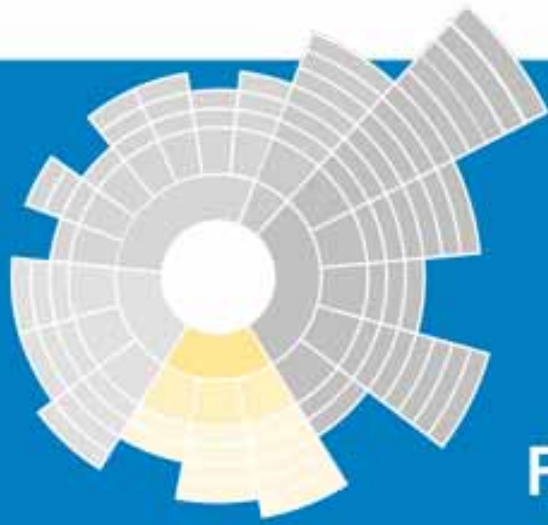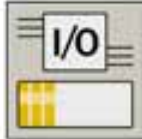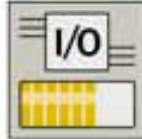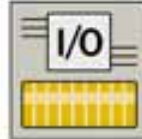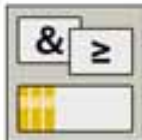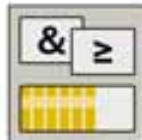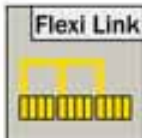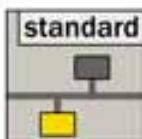
Find the right product fast

sens:Control – Selection guide

With the help of this selection guide, you can find the right product for your application. Simply choose based on the criteria on the left. Use our sens:Control Selector on www.sens-control.com, the quick and easy way to find the best product for your application.

1 Selection criteria

Inputs and outputs needed	I = 1 ... 4 O = 1 ... 2	I = 5 ... 100 O = 4 ... 48	I = > 100 O = > 48
Complexity of the logic	Low	Medium	Complex
Configuration/Parameterization	Via screwdriver	Using intuitive software	
Expanded functionality	Flexi Link networking of Flexi Soft stations	Motion Control – safe drive monitoring	For the connection of EFI sensors
Integration possibilities	Integration into standard networks	Integration into safety networks	
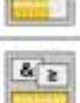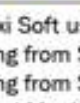
2 Product selection

		Safety relays	Safety controllers		Network solutions
			Flexi Classic	Flexi Soft	
How would you like to configure your safety device?	Via screwdriver	■	■	–	–
	Using intuitive software	–	–	■	■
How many in-/outputs do you need?	I = 1 ... 4 / O = 1 ... 2	■	–	–	–
	I = 5 ... 100 / O = 4 ... 48	–	■	■	–
	I > 100 / O > 48	–	–	–	■
How complex is your application's logic?	Low	■	–	–	–
	Medium	–	■	–	–
	Complex	–	–	■	■
Which additional functions do you need?	Flexi Link – safe networking	–	–	■ [1]	■ [1]
	Motion Control	■	■ [2]	■ [3]	■
	EFI	–	–	■ [4]	■ [4]
How will the safety solution be integrated into your standard automation?	Integration into standard networks	–	■	■	■
	Integration into safety networks	–	–	■ [1]	■
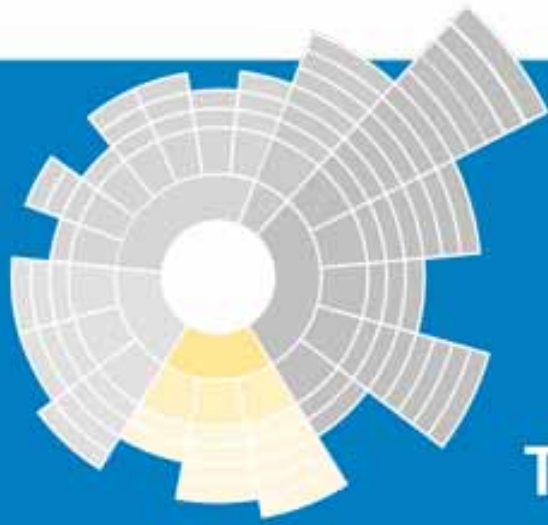
1) Flexi Link – The added feature of Flexi Soft used to network up to 4 Flexi Soft stations together in order to facilitate the construction of machines.
2) Motion Control – Safe drive monitoring from SICK makes it possible to monitor a safe zero speed or speed monitoring using the Speed Monitor MOC3SA in connection with the Flexi Classic.
3) Motion Control – Safe drive monitoring from SICK makes possible zero speed monitoring using the function block 'Ramp down detection' in the Flexi Soft Designer programming tool as well as the connection of the Speed Monitor MOC3SA to monitor a safe zero speed or perform speed monitoring.
4) EFI (Enhanced function interface) – The use of enhanced sensor features such as the monitoring of two simultaneous safety fields of a laser scanner (i.e. S3000).

You can find more information about sens:Control at

www.sens-control.com

The right solution for every application

Safety relays

Safety sensors encompass a broad variety of types, from a single channel emergency stop pushbutton to safety laser scanners with PNP outputs. Additionally, there is a need for manual or automatic reset and application specific logic such as safety locking device.

SICK's relay family encompasses many special types of devices whose function is to connect all types of safety sensors: The right relay for all applications.
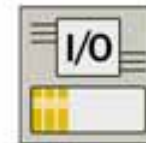
Product features

- Simple integration of all safety components

- Compact devices: Up to 4 safety contacts in a 22.5-mm device

- Reliable and robust

- Integrated External Device Monitoring (EDM)

- Status information by LED

Benefits

- Fast device exchange using pluggable terminals

- Minimized cabinet space

- The optimum solution for all types of problems: from the generalist to the specialist

- Maintenance free

- Optimal monitoring and diagnostics options

You can find more information about sens:Control at
www.sens-control.com

Selection aid for safety relays

Main application	Input wiring	Features	Output contacts / Signal contacts	UE device
	Single-channel input	Stop cat. 0	2/1	**UE23-2MF**
			3/1	**UE23-3MF**
	Dual-channel input	Stop cat. 0	2/1	**UE43-2MF**
			3/1	**UE43-3MF**
		Stop cat. 1	3/0	**UE45-3S1xD33** 1 output up to 3 s off-delay
			3/0	**UE45-3S1xD330** 1 output up to 30 s off-delay
	Dual-channel input	Stop cat. 0	3/1	**UE43-3AR**
			4/0	**UE43-4AR**
	Dual-channel input	Stop cat. 0	3/0	**UE44-3SLxD33** 1 output up to 3 s on-delay
			3/0	**UE44-3SLxD330** 1 output up to 30 s on-delay
	Dual-channel input	Stop cat. 0	2/1	**UE42-2HD**
	Dual-channel input	Stop cat. 0	3/1	**UE10-30S** [1]
			2/0	**UE10-2FG** [1] **UE12-2FG** [1]
	Dual-channel input	Stop cat. 0	2/1	**UE48-20S**
			3/0	**UE48-30S**

[1] Contact expansion module for main units

Area of use

Usable in various industries, for example:

- Storage and Conveyor
- Packaging
- Presses
- Logistics
- Robotics
- Electronics and Solar

More about the possibilities of safety relays
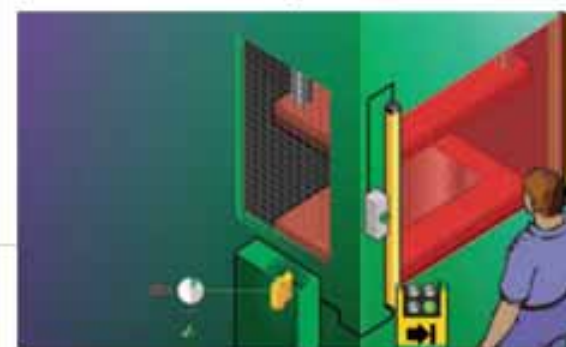
e.g., safety on a press → www.sick.com

Flexi Classic modular safety controller

The construction of the Flexi Classic allows its modules to be interconnected to create a user specific safety solution. The communication between devices is achieved using an internal bus. The selection of connected sensors and logic is done via a rotary switch which is found on each module. An exception to this are the relay modules and the gateways which are used to transfer diagnostics information to the automation network. These are output modules and do not have an effect on the setting of the logic.

Setting up a Flexi Classic project is fast not only due to the simple method of parameterization, but also in the planning phase thanks to the clarity and simplicity of the Flexi Classic Configurator. This offers a selection of modules and sensors as well as a fast system setup made possible via a wiring diagram. The special muting modules complete the series, which efficiently solves multifaceted application.

Product features

- Rotary switch for the simple setting of the safety program (no software needed)

- Modularly expandable

- Direct connection of all types of sensors

- Logic blocks (AND/OR/Muting/Bypass/Reset/EDM)

- Integration into all common networks (PROFIBUS DP, DeviceNet, CANopen, Modbus TCP, Ethernet (TCP/IP), EtherNet/IP and PROFINET-IO)

Benefits

- Low I/O per module avoids the purchase of unused inputs and outputs

- Easy wiring, configuration and module change via screwdriver

- The Flexi Classic Configurator provides an easy way to create the project from logic definition up to wiring aid

- Complete diagnostics to avoid expensive downtimes

- Significant reduction of required space

- Reduction of wiring effort

Flexi Classic Configurator and wiring aid

The Flexi Classic Configurator provides an immense help, in creating a Flexi Classic system. You can string together modules, drag & drop sensors and actuators and view the internal logic to make the creation of a project easy and quick. This program can then be implemented on the device using a screwdriver.
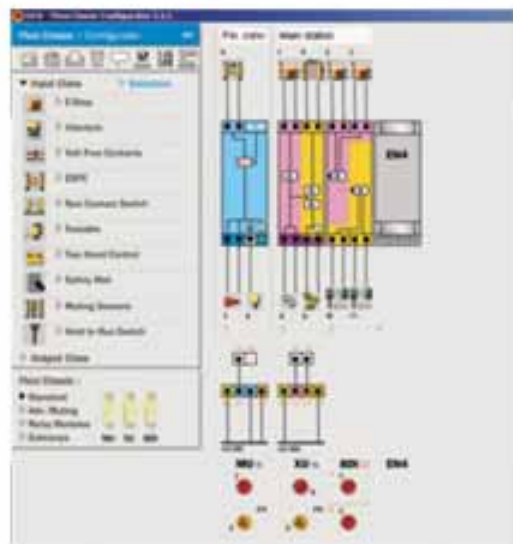
Flexi Classic Configurator

- Fast and clear module selection
- Easy positioning of the sensor
- Fast overview of the internal logic
- Report for an overview of the complete configuration
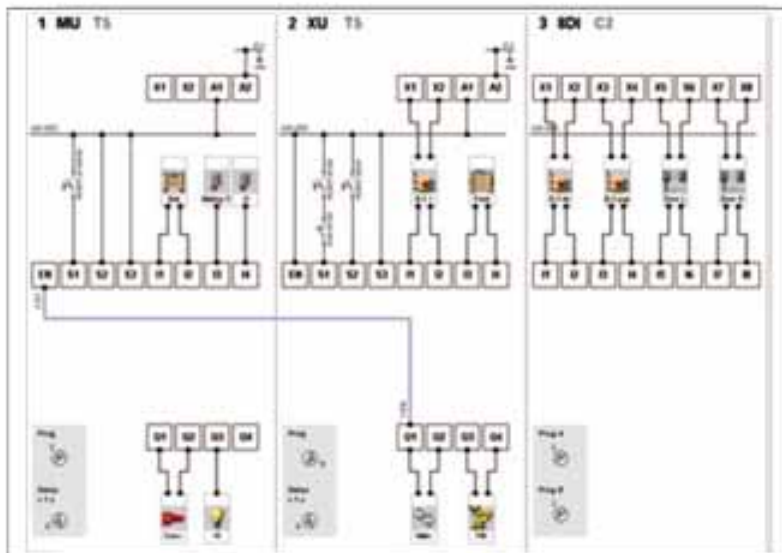
Wiring in the configurator

- All configuration information in one document
- Documentation of the system is created automatically
- Easier wiring and commissioning
- The creator of the wiring diagram receives the whole configuration on one page
- Fast overview for easy maintenance and continuous inspection

Area of use

- Machines with simple to medium safety logic
- For different industries, e.g. electronics, robotics, packaging and logistics, Automotive

More about the possibilities of Flexi Classic
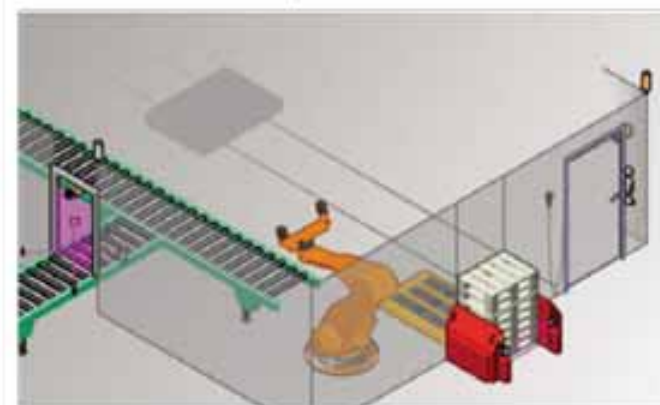
e.g., safety automation at a palletizing robot ➜ Page 20

You can find more information about sens:Control at

www.sens-control.com

Safety switches from SICK – versatile. Cost-effective. Durable.

The right safety switch for every application – safety switches portfolio from SICK

Various technologies and housing designs provide a multitude of cost-effective options for your safety applications. Increased industrial toughness, quick diagnostics and communication with safe control solutions from SICK indicate effective solutions for all performance levels.

Main features at a glance

	Electro-mechanical safety switches
Safety tasks	
Actuation	• Switch cams/hinge • Separate actuator
Electrical contacts	• Floating contacts (5 V ... 230 V)
Diagnostics	• Signaling contacts • Optional LED status display
Performance level	• With a safety switch up to PL c • With two safety switches up to PL e
Product group overview	→ Page 36

Intuitive configuration tool – Flexi Soft Designer
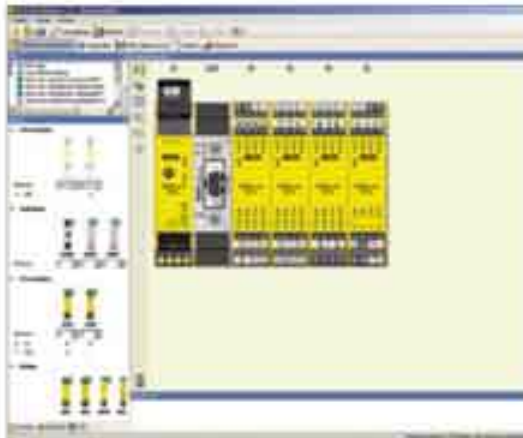
Hardware configuration

- Easy hardware selection using drag & drop
- Broad range of in- and output elements with easy to understand icons
- Clear diagnostics through online monitor, all relevant data on one page
- Customized modification of elements which can be saved in a separate library
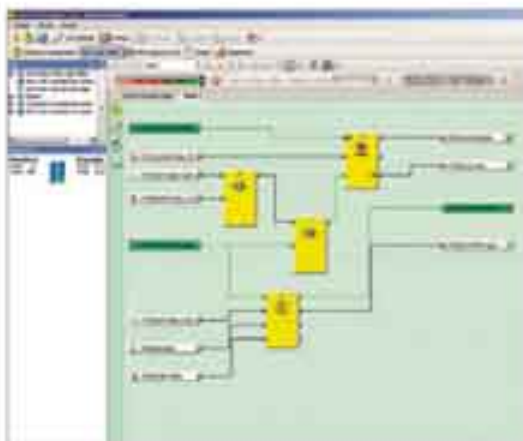
Logic editor

- Extensive library of 38 certified function blocks
- 255 logic blocks are available for each project
- Application specific blocks for presses, muting and ramp down detection
- Offline simulation of the created project
- Online forcing of inputs
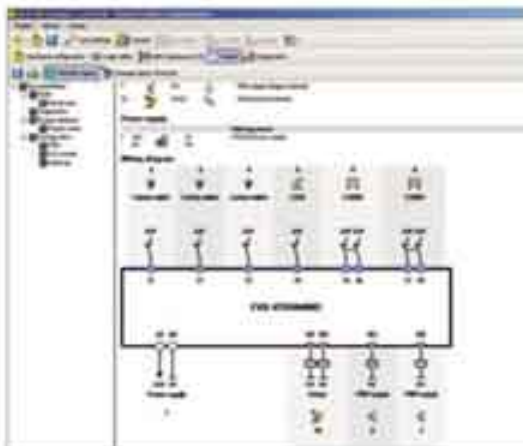
Report

- Detailed wiring diagram for fast commissioning and a fault free installation
- Extensive multi-lingual documentation in a single file
- Detailed illustration of the logic
- Complete bill of material (BOM)

Area of use

Flexi Soft effectively handles the demands of machines with complex logic as well as those with multiple operating modes and is thereby applicable in various industries:

- Automatic guided vehicle
- Robotics
- Automotive

More about the possibilities of Flexi Soft

e.g., maintenance mode on a wood scanner → Page 21

You can find more information about sens:Control at

www.sens-control.com
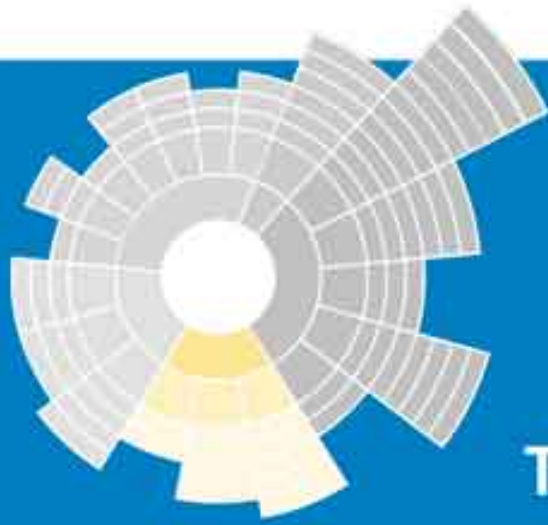
The perfect combination

Network solutions

A distributed system is the best choice, if maximum flexibility at minimized costs is required. Todays local solutions must be freely scalable and modular expandable. The design engineer is supported by modern software tools in order to optimize system performance. Network solutions from SICK allow the integration and evaluation of all safety sensors into all common fieldbus systems and are able to create a safely automated machine via programmable controllers and remote I/Os. Optimal decentralized functionality and comfortable diagnostics for a fast troubleshooting go without saying.
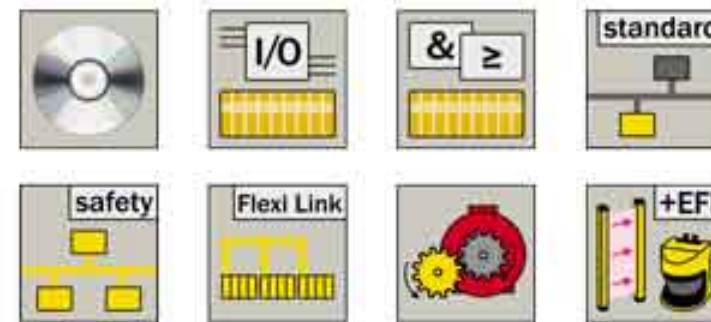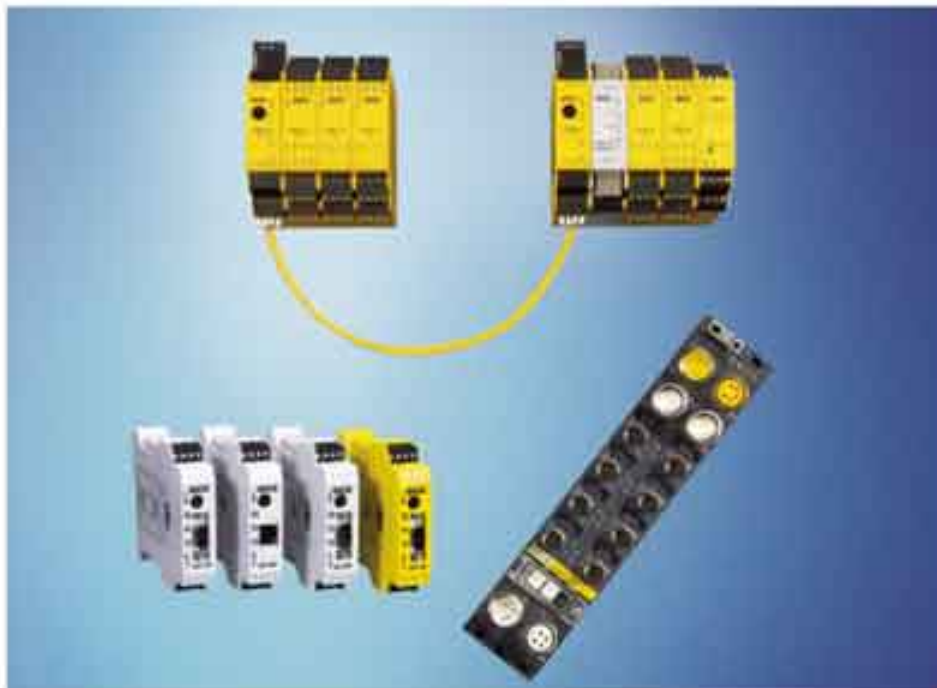
Products for the integration into your network topology

Comfortable connection: PROFIsafe and AS-Interface Safety at Work

- Local input modules rated up to IP 67 for easy safety automation without using a control cabinet
- Central configuration and diagnostics down to the sensor level with one software tool
- Combines safe and non safe data in runtime operation

Complete automation: DeviceNet Safety

- Complete safety solution with compact programmable controllers and Remote I/Os
- Open safety automation, based on globally accepted standards
- Comfortable and continuous diagnostics for fast troubleshooting
- IP 67-rated remote controller for safety automation without using a control cabinet

Use more features: EFI gateways

- Optimum use of SICK's user friendly sensor features over all leading network protocols
- Comfortable and continuous diagnostics of the sensors as well as fast troubleshooting

Flexi Soft gets hitched – using the extra Flexi Link feature

Different parts of machines are often not connected until they reach the end user. Therefore they need a high degree of flexibility and easy configurability. Flexi Link, an extra feature of Flexi Soft, is used to connect up to 4 Flexi Soft stations. It makes short work of modular machines, allowing for the interconnection of safety commands between machines. It adapts itself to the application and safety requirements and allows for diagnostics over the entire Flexi Link network via a single connection.

Function features

- Linking of up to 4 Flexi Soft stations
- 26 or 52 bit data transfer per station
- Entire planning and addressing is possible from any station
- Management of the entire Flexi Link system using a single configuration tool and a project file
- Flexible exchange and removal of individual stations via teach function ensures the flexible construction of linked machines

Benefits

- Cost saving, because no additional modules are needed
- Familiar parameterization tool: Flexi Soft Designer
- Expensive safety wiring between machines not needed
- Commissioning and troubleshooting from a single location
- Emulation of individual modules from the Flexi Link system which are not running or not yet needed

Area of use

Usable in various industries, for example:

- Storage and Conveyor
- Packaging
- Assembly lines
- Logistics
- Robotics
- Handling Systems
- Machine Tool

More about the possibilities of Flexi Link

e.g., safety on a four cell welding robot → Page 22

You can find more information about sens:Control at

www.sens-control.com
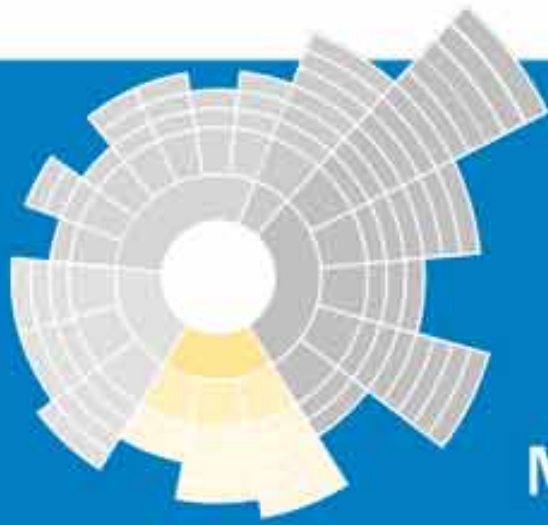
Motion Control – safe drive monitoring

In machines, motion is initiated by drives. They must be controlled in a safe way, so that in the case of malfunction or entry into the machine the drive is safely switched off. Within the title Motion Control, SICK expands it's safety control solution portfolio to include drive monitoring.

Included in this portfolio expansion is zero speed monitoring, which is achieved via software integration into the Flexi Soft system or hardware integration using the Speed Monitor MOC3SA which has the two functions of zero speed monitoring as well as speed monitoring.

Zero speed detection with the function block 'Ramp down detection' in Flexi Soft

The function block 'Ramp down detection' offers zero speed detection on machines and in plants and serves to protect against access. It is directly integrated into the Flexi Soft safety controller via the Flexi Soft Designer and is selected in the logic editor.

Ramp down detection
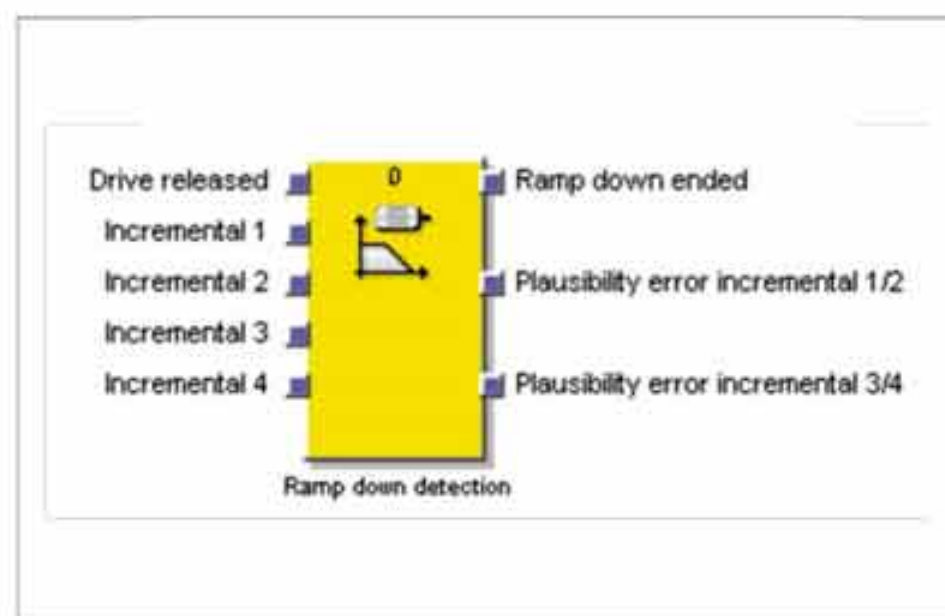
Product features

- Zero speed monitoring
- Maximum input frequency 125 Hz, tolerance time
- Signal source: Proximity sensors 24 V DC PNP or HTL encoders
- Optional plausibility check of the encoder signals
- Drive control input to activate the function block

Benefits

- Cost saving because no additional module is needed
- Use of existing I/O modules
- Integrated into the Flexi Soft project via the Flexi Soft Designer

Zero speed and drive monitoring with the Speed Monitor MOC3SA

The Speed Monitor MOC3SA can detect zero speed and monitor the speed of machines and production lines and is easily added to an existing safety controller.

Product features

- Zero speed and speed monitoring
- PL e (EN ISO 13849-1), SIL3 (IEC 61508), SILCL3 (EN 62061)
- Maximal input frequency of 2 kHz
- Signal source: Proximity Sensors 24 V DC PNP or HTL encoders
- Adjustable speed limit/monitored frequency: 0.5 to 99 Hz

Benefits

- Multiple Operating modes to monitor speed
- Configuration assistance in the Flexi Soft Designer and Flexi Classic Configurator
- Cascading of several axes possible

Safe drive functions of the Speed Monitor MOC3SA

The Speed Monitor MOC3SA covers multiple safety drive functions. It handles SLS (Safety Limited Speed) and SSM (Safe Speed Monitor).

The following list describes the two functions SLS and SSM, which the Speed Monitor MOC3SA can achieve.
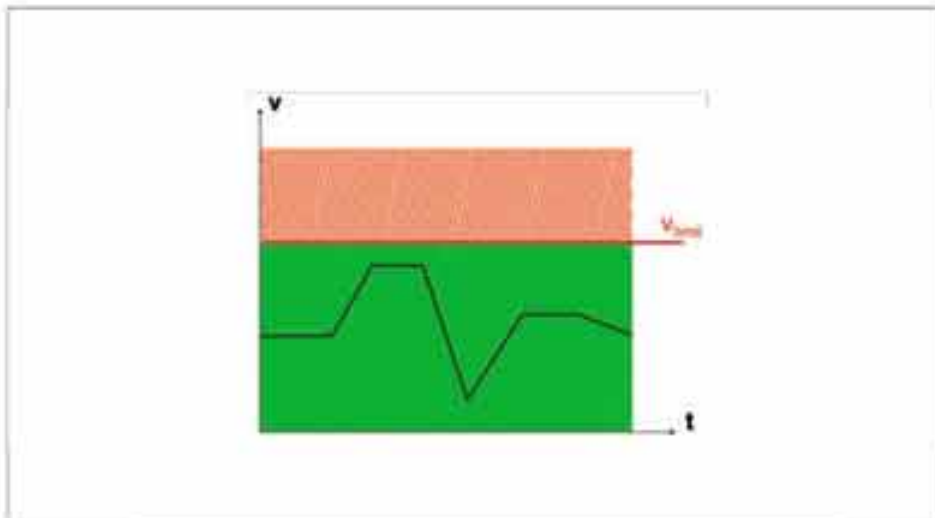
SLS – Safety Limited Speed

SLS monitors the speed of the drive. When exceeding of a preconfigured speed limit the drive will be switched off by the speed monitor respectively by STO (Safe Torque Off).
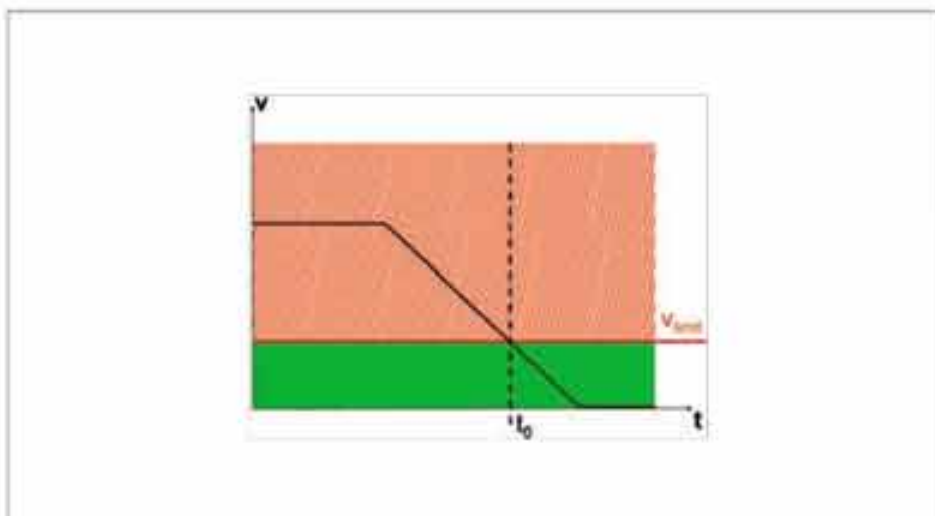
SSM – Safe Speed Monitor

SSM gives a safe output signal when undershooting or exceeding a set speed limit. It's used for example to unlock a door interlock once the machine has stopped.

Area of use

- Application of zero speed monitoring for access protection (e.g., material handling machines, palletizing and robotics)

- Use of safe reduced speed in maintenance mode (e.g., material handling machines and palletizing)

More about the possibilities of Speed Monitor MOC3SA
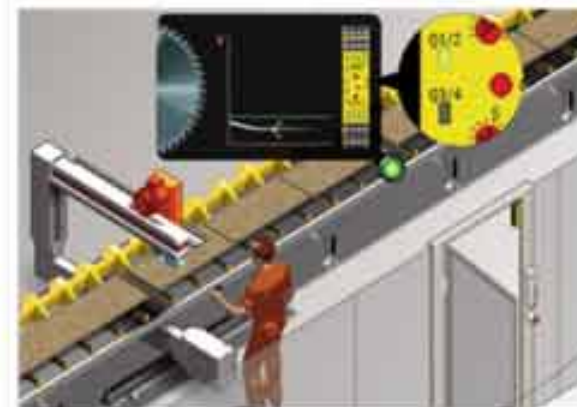
e.g., protection of a saw line ➜ Page 24

You can find more information about sens:Control at

www.sens-control.com
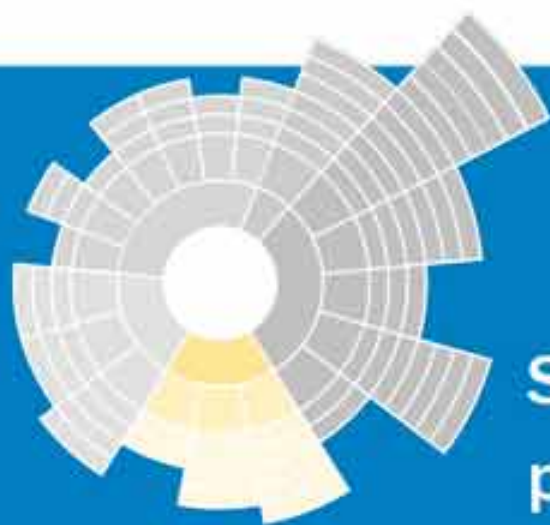
Safety automation on a palletizing robot using Flexi Classic

The task

In a palletizer a robot picks up package goods and stores it on pallets. The dangerous movement had to be stopped, if an unauthorized person walks into the cell. Maintenance should be possible with an enabling switch.

Realization

For access protection at the packaging goods entrypoint, a muting system using a laser scanner S300 and two reflex sensors WL12 is used. It differentiates between man and product, letting the goods pass through while shutting down the infeed via the Flexi Classic safety controller if a person attempts to enter.
The service door is protected with an i14 Lock safety locking device.
If the dangerous movement is safely stopped, the door can be opened.
In maintenance or service mode, the robot has to be in a safe position.
To setup the robot, one has to switch into installation mode on the operator panel.
Because the safety function of the interlock on the door is overriden, the E100 enabling switch takes over as a safety device. If it is forced into the middle position, the machine runs with reduced speed. If the E100 enabling switch is forced into its end position or released, the machine stops. The override of the safety function from the i14 Lock is performed by a second Flexi Classic.

Application at a glance

The task	Hazardous area protection
Industrial sector/branch	Food and beverage
Applications/type of machine	Palletizing robot
Safety functions	Switching off in case of danger
Product family	Flexi Classic, i14 Lock, S300, E100, WL12
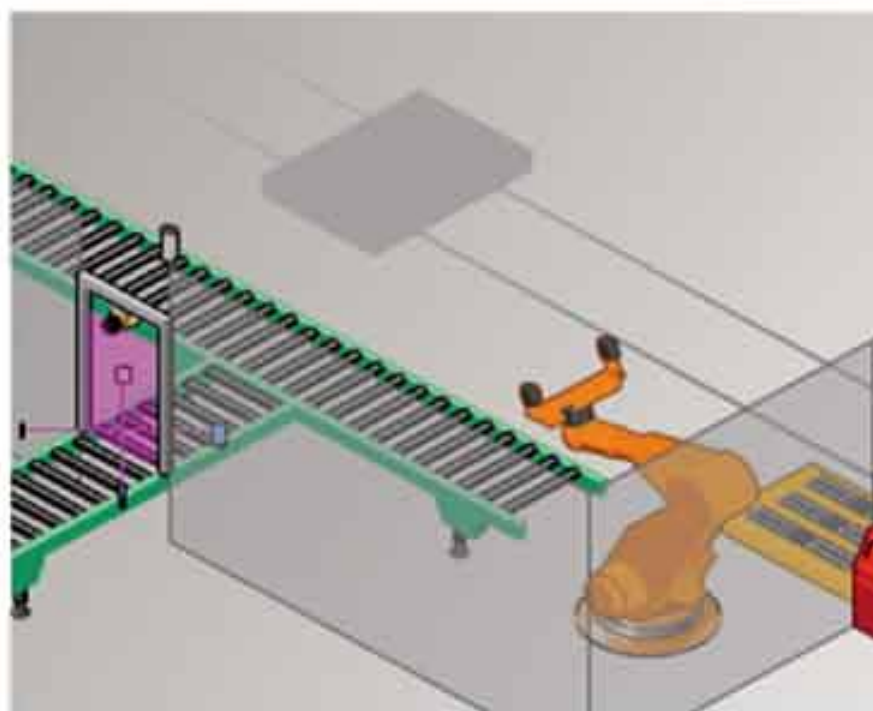
Benefits

• The program selection is done simply using a rotary switch
• Safe setup of the machine
• Space savings thanks to the 22.5 mm device width

More about the Flexi Classic safety controller → Page 12

Protection during setup and service mode with Flexi Soft

Application Finder
SICK is continuously publishing examples of application solutions on the Internet
→ www.sick.com

The task

In a sawmill, single planks are individually tested for inconsistency and are sorted out using a wood scanning machine. The wood scanner must be protected against unauthorized access during regular operation.

Realization

The wood scanner is surrounded by 4 access doors which are each protected by an RE27 non-contact safety switch. The RE27 must be installed in such a way as to avoid manipulation. The wood scanner only runs if all doors are closed. If one door is opened during regular operation, a safety switch is activated and the conveyor belt and wood scanner are switched off.
In order to allow for service mode, an E100 enabling switch is used.
The safe reduced speed in setup mode is monitored by the Speed Monitor MOC3SA, which switches off the machine if too high a speed is detected.
Additionally, three dual-channel ES21 emergency stop pushbuttons are wired in series to switch off the machine if it is necessary.
All connected sensors are attached to the Flexi Soft safety controller where the signals are combined in the logic editor in order to switch off the machine safely.

Application at a glance

|	
The task	Safety automation, Hazardous point protection
Industrial sector/branch	Wood, furniture
Applications/type of machine	Wood scanner
Safety functions	Switching off in case of danger, Safety related stop function, Differentiation between man and material
Product family	Flexi Soft, RE27, ES21, E100, Speed Monitor MOC3SA

Benefits

- Safe setup using an enabling switch
- Access protection to a machine during setup
- Compact safety concept for the entire machine

More to the Flexi Soft safety controller → Page 14

You can find more information to sens:Control at
www.sens-control.com
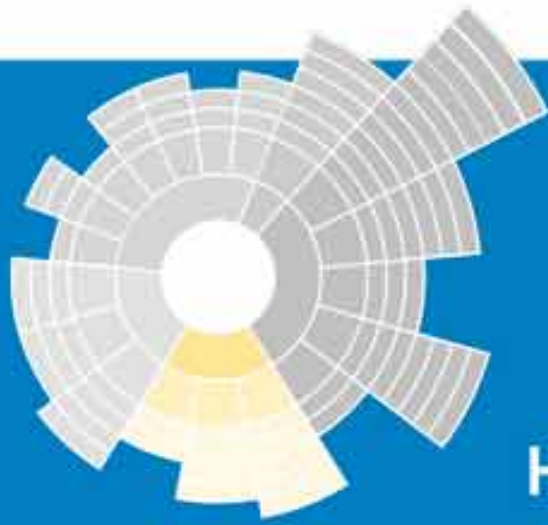
High productivity using multiple zones

Safety on a four cell welding robot using Flexi Link

The task

A four cell welding robot handles workpieces at 4 independent turntables. The access is protected by fences on the right and left side. In both fences there is a service door. The operation is only possible if these doors are closed. The two pairs of turntables are separated from one another with a separate fence down the middle. The entry points by which the worker can access the turntables are always open. Hence, the finished welded pieces of metal can be removed and a new one inserted only if the arm of the robot is in another cell. Otherwise the robot must stop if someone enters this area. The cell in which the welding arm is working may not be entered. Additionally it should be possible to manually stop the robot in a hazardous situation.

Realization

The welding process is divided into two areas, each with two turntables. Entry through the service doors is secured by a i12S safety switch with separate actuator. If one of these doors is opened, the robot and turntables in that area stop. The entry points used to exchange material are monitored by M4000 multiple light beam safety devices. Therefore an interruption of a particular entry point's M4000 only stops the robot if the arm of the welding robot is in this area. The safe position of each of the two turntables is detected by a IN4000 non-contact safety switch.

Application at a glance

The task	Safety automation, access protection to a machine during set up, hazardous area protection, safe position monitoring
Industrial sector/branch	Metal and steel production
Applications/type of machine	Welding robot
Safety functions	Switching off in case of danger, Reset/Restart, safe position monitoring
Product family	Flexi Soft, IN4000, M4000, ES21, i12S

All safety components in each of the two areas are attached to a Flexi Soft safety controller station which are in turn connected with one another over Flexi Link. If there is a complete stop of the robot, the dangerous action of the turntable will also stop. If one area of the machine has stopped, the robot can work in the other area until the stopped section is brought back online. The switch off signal is sent directly from the Flexi Soft safety controller. After a complete stop, the Reset button has to be pushed to start the machine again. Additionally, there is one ES21 emergency stop pushbutton at each entry point and on each service door which switches off the machine in a hazardous situation. For servicing purposes, one of the two sections can be removed from the safety system.

Benefits

- Possibility of parallel production
- Increased throughput due to reduced downtime
- Highest safety level using multiple protective devices
- Possibility of designing a safety concept encorporating multiple machines and then commissioning those machines one at a time without changing the program

Used modules:

- Main module
  FX3-CPU1
- Expansion modules
  FX3-XTIO
  FX3-XTDI

Hardware configuration
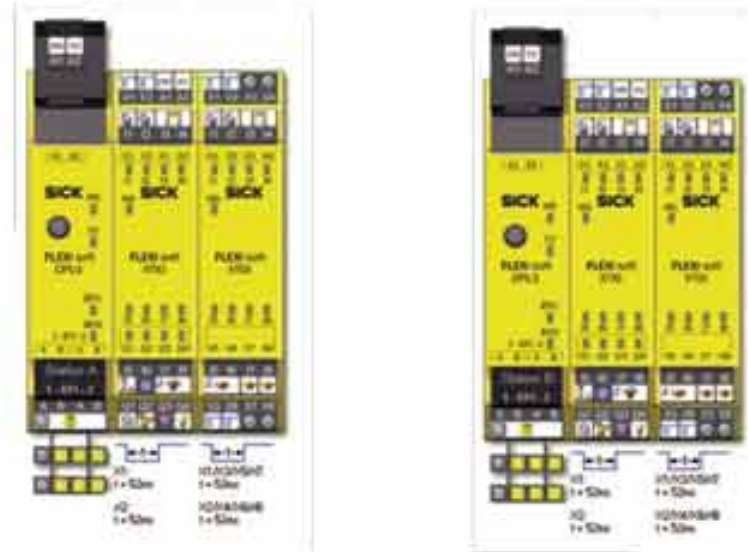
Used logic functions:

- AND, OR
- Reset

The description of how these function blocks work is found in the Flexi Soft Designer software operating instruction (8012480) or in the Flexi Soft Designer online help.

I/O summary

More to Flexi Link safe networking → Page 17

You can find more information to sens:Control at

www.sens-control.com

Controlled motion with the highest level of precision

Entry guarding of dangerous areas with the Speed Monitor MOC3SA

The task

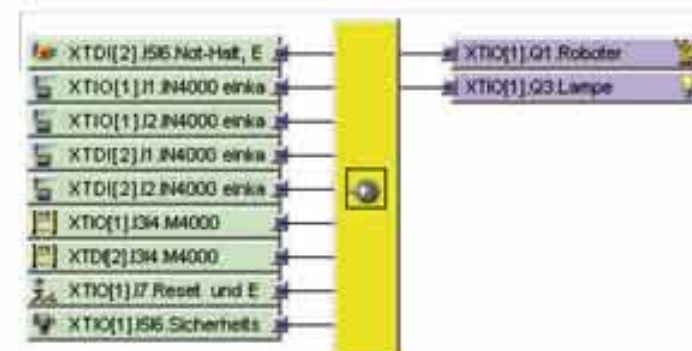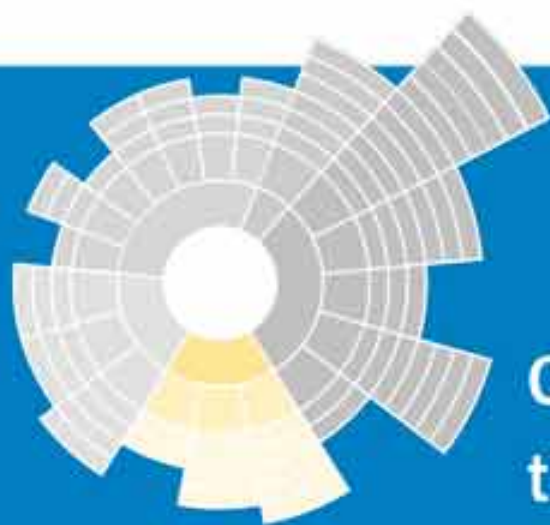Panels and boards are sawn on a sawline. The sawline can be accessed only if the drive has been stopped and is no longer causing a dangerous movement. Before the worker can perform maintenance on the sawline, he must switch the machine into service mode using the operating mode selector switch. After a zero speed has been detected, the door is unlocked and the worker can access the sawline to perform maintenance. During maintenance, the worker can start the saw at a reduced speed via an enabling switch in order to perform tests. In order to avoid a danger due to malfunction at slow speeds, the speed of the saw must be monitored in a safe way such that the drive is switched off when the set speed has been exceeded.

Realization

The machine is protected using the Speed Monitor MOC3SA, whose function is to monitor both zero speed and a set safe speed. Once service mode has been selected, the Flexi Soft safety controller sends a signal to the drive or PLC so that the saw can move to it's maintenance position. The Speed Monitor MOC3SA evaluates the speed of the saw to ensure safe motion using the function Safe Speed Monitor (SSM). As soon as motion slows to a safe speed, it sends a signal to the Flexi Soft which then releases the solenoid on the i10 Lock safety locking device. The

Application at a glance

The task	Hazardous area protection
Industrial sector/branch	Wood, furniture
Applications/type of machine	Saw machine
Safety functions	SLS – Safety Limited Speed, SSM – Safe Speed Monitor
Product family	Flexi Soft, i10 Lock, Speed Monitor MOC3SA, E100, i12S
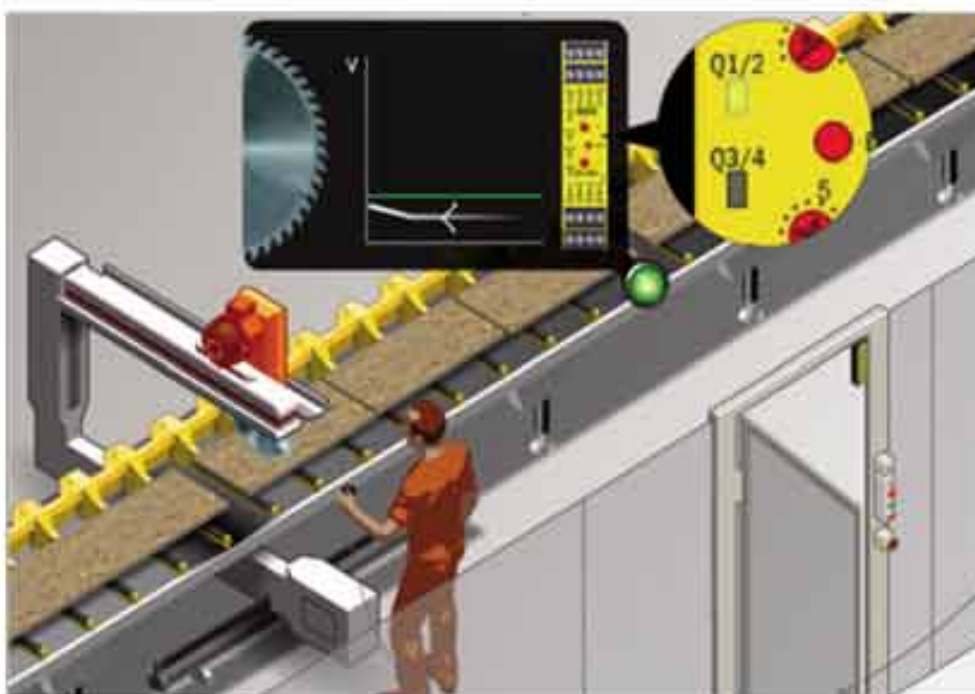
worker can now activate Safety Limited Speed (SLS) in order to service the sawline through use of the E100 enabling switch. The sawblade is only allowed to run if its speed stays within the set limit and the enabling switch remains pressed. If at malfunction the speed limit is exceeded, the drive will be switched off by the Speed Monitor MOC3SA to avoid injury. In order to acheive safety limited speed, the Speed Monitor MOC3SA constantly compares the speed of the saw

with the preconfigured value which has been set. Using a semiconductor output, the unit can either control the drive and interlock directly, or transfer this safe information to the Flexi Soft.

Benefits

- Easy realization using the Flexi Soft Designer
- Immediate entry once the machine has stopped increases productivity compared to using a time delay based solution
- Faster access to the machine and fast intervention in case of malfunction

Used modules:

- Main module FX3-CPU1
- Expansion module FX3-XTIO
- Motion Control module Speed Monitor MOC3SA

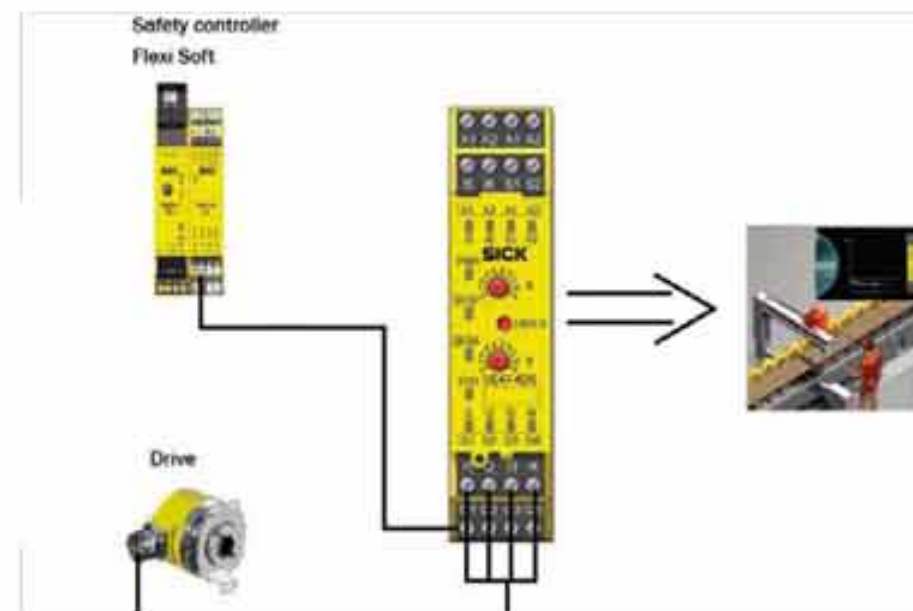Hardware configuration

Process:

- Speed detection via Speed Monitor MOC3SA
- Processing of safety logic in the Flexi Soft safety controller (e.g., speed, zero speed and solenoid locking)
- Release of the interlock, initiation of setup mode and safe shut off in the case of malfunction via Flexi Soft

Functional principle

You can find more information to sens:Control at

www.sens-control.com

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Republic of Korea
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România
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Optimized system solutions from SICK ensure efficient acquisition of environmental and process data in many industrial processes.

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