Flexi Loop

The flexible and safe series connection with diagnostic function

SICK
Sensor Intelligence.

Flexi Loop

Advantages

Safe in series thanks to sophisticated device concept

The Flexi Loop safe series connection can wire up to 32 sensors together. The total wiring length can be up to 3,000 m with the right Flexi Loop nodes. Simply choose between 4 evaluation nodes and connect them to a diagnostic node. You only need one input on the safety controller for the entire safe series connection. This saves you time and money during installation, but also when exchanging devices.

Consistent safety
Flexi Loop offers a high level of safety in applications up to PL e and SIL3. The simple calculation of the performance level saves time, since the safe series connection individually monitors all sensors connected to it. Flexi Loop also prevents error masking: you can see all errors in the event history.

Simple diagnostics
A clear overview on site and in the software: Comprehensive diagnostics of the entire Flexi Loop system is performed via the diagnostics node or the Flexi Soft Designer or Safety Designer configuration software. This enables immediate troubleshooting and machine restart. In addition, diagnostic data can be transmitted to an HMI via the configuration software.

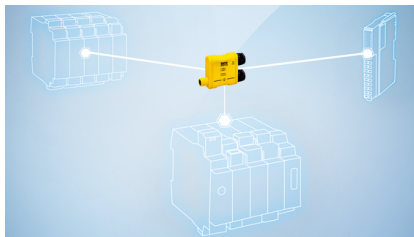## ➕ Easy wiring, fast configuration and comprehensive diagnostics

Countless combination options

The Flexi Loop safe series connection is not only an asset for safety switches. It can also be used to combine light curtains and other safety sensors, no matter the manufacturer. Safety sensors on spatially separated system parts can be easily integrated into systems with the help of Flexi Loop. This ensures efficient machine design. The safe series connection facilitates evaluation of sensor data.

Variable combination

In addition to the master nodes, Flexi Loop has additional diagnostic, evaluation and auxiliary nodes and can be connected directly to the input of a safety controller. In order to prevent a voltage drop in the series connection, the power calculator determines exactly where to install a module for the power supply.

Convenient connection

You can connect Flexi Loop to the Flexi Soft and Flexi Compact safety controllers and configure them using the configuration software. With master node 1 or 2, Flexi Loop is connected to Flexi Classic via the operating mode selector switch or to the ReLy safety relay using a DIP switch. Product recommendation RLY3-LOOP100

Quick diagnostics

With the help of LEDs, the master node provides an overview for diagnostics, thus ensuring high machine availability. The IO-Link interface of the MSTR2 establishes a connection to the process controller in real time. The advantage: This allows the Flexi Loop nodes to be identified and confirmed without teach-in. The configuration of the master node can be customized.

➕ Connecting sensors in series to enable versatile use

Flexi Loop

Technical data overview

Safety level	PL e, SIL 3
Suitable for	Flexi Classic Flexi Soft (depending on type)
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, IP67
Ambient operating temperature	−25 °C ... +55 °C

Product description

The Flexi Loop safe series connection allows you to connect up to 32 safety sensors up to PL e: With the Flexi Loop components, connecting safety locking devices, pushbuttons and lights to the safety controller is very simple. All sensors are directly supplied with voltage and connected via M12 standard cables. Sensors with OSSD outputs can be combined regardless of the manufacturer. The safety relays and Flexi Classic are either connected directly or via the master node. Easily configure Flexi Loop on a programmable safety controller using software. Flexi Loop offers consistent diagnostics both in the software and on the device itself.

At a glance

- Safe series connection of up to 32 sensors regardless of the manufacturer
- Up to 100 m in cable length between the sensors
- IP65 and IP67 enclosure rating
- Integration via M12 standard cable
- Individual monitoring of the sensors up to PL e
- Detailed diagnostic information
- Direct voltage supply

Your benefits

- Reduce costs by reducing the number of inputs required on the safety controller and simplifying the wiring
- Use Flexi Loop on modular machines and over long distances
- Easily retrofit existing machinery
- Quickly calculate the performance level
- Configure the device nodes intuitively
- Perform troubleshooting quickly thanks to detailed status information
- Integrate Flexi Loop seamlessly into safety controllers from SICK

Fields of application

- Safe door monitoring on machines with many doors
- Systems with large footprint and decentralized safety paths
- Safe monitoring of production cells and conveyor belts

Ordering information

Other models and accessories ➜ www.sick.com/Flexi_Loop

Flexi Loop component	Use of Flexi Loop node	Connection type safety device	Description	Additional interfaces	Type	Part no.
Module for connection to Flexi Classic	–	–	Flaxi Loop master node to connect a Flexi Loop cascade to Flexi Classic. System diagnostics during operation and during commisioning without busmaster.	–	FLA-MSTR00001	1061713
				IO-Link	FLA-MSTR00002	1067650
Module for energy supply	–	–	The power supply module is used to connect a power supply with 24 V DC, for the electrical isolation and for overcurrent shutdown.	–	FLA-PWRI00001	1061715
Module for field diagnostics	–	–	The diagnostics module is used as a commissioning aid and to display the Flexi Loop states during operation.	–	FLA-DIAG00001	1061714
Module to terminate series connection	–	–	The terminator is used to terminate the safe series connection at the last Flexi Loop node.	–	FLT-TERM00001	1061716
Node for safety sensors (OSSD)	For safety sensor with dual-channel OSSD outputs, With standard input	Female connector M12, 5-pin	–	–	FLN-OSSD1000105	1061709
	For safety sensor with dual-channel OSSD outputs, With standard input, with standard output	Female connector M12, 8-pin	–	–	FLN-OSSD1100108	1061710
Node for safety switch (EMSS)	For dual-channel equivalent electro-mechanical safety switch (EMSS)	Female connector M12, 5-pin	–	–	FLN-EMSS0000105	1061711
	For dual-channel equivalent electro-mechanical safety switch (EMSS), With standard input, with standard output	Female connector M12, 8-pin	–	–	FLN-EMSS1100108	1061712

Flexi Loop component	Use of Flexi Loop node	Connection type safety device	Description	Additional interfaces	Type	Part no.
Y-adapter	–	–	The Flexi Loop Y-adapter (EM-MS) splits the 8-pin connection of the FLN-EMSS1100108 in two 5-pin connections: One for dual-channel equivalent electro-mechanical safety switches and one for non-safe I/O signals.	–	FLA-YCON00001	2074733
			The Flexi Loop Y-adapter (OSSD) splits the 8-pin connection of the FLN-OSSD1100108 in two 5-pin connections: One for safety sensors with dual-channel OSSD outputs and one for non-safe I/O signals.	–	FLA-YCON00002	2074734

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. 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 a wide range of 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 complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is "Sensor Intelligence."

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