

## **Connect safely, network safely, package safely**

**Waldkirch, Germany, May 2014 - "We make business safe" – true to this maxim, SICK has equipped the Flexi Soft modular safety controller with new functionalities. With the Flexi Loop functionality upgrade, packaging system manufacturers can reap the rewards of the efficient cascading of safety sensors: with Flexi Line they benefit from the safe networking of modular machines and with the Drive Monitor motion control module from the safety oriented monitoring of drives. These innovations establish smart and efficient safety concepts for machines and systems in the packaging industry.**

With the cascading of safety sensors, the safe networking of modular machines, and safety oriented drive monitoring, SICK provides technically and commercially efficient safety solutions for all phases of the packaging process. As confirmed by many users, along with the highest level of machine safety, the wide flexibility of the Flexi Soft platform is of great significance for machines and systems in the packaging industry.

### **Safe cascading avoids costs and improves performance.**

Materials supply, servicing, and maintenance work, as well as error rectification, are the most important reasons that packaging machines are often provided with a variety of safety doors, service panels, or covers. Along with these, emergency stop pushbuttons are almost always provided, as well as safety laser scanners or safety light curtains in some applications where machine openings without a mechanical, physical guard must be accessed. Due to the special screened cables involved, as well as the discrete wiring and safe inputs for the safety controller, integrating all of these switches and sensors separately would until now have incurred significant costs. The Flexi Loop functionality upgrade fulfills the requirement for cost-saving cascading of safe switches and sensors, with which safety doors and servicing panels on machines are protected up to Performance Level (PL) e in accordance with DIN EN ISO 13849-1. Up to 32 sensors, even those produced by other manufacturers, can be cascaded and receive voltage supply via loop nodes in enclosure rating IP67. This minimizes expenditure on cabling and frees up safety controller inputs. Here the power supply and communication paths

between the individual loop nodes can be as long as 30 m, meaning that a full "loop" may amount to a total length of 960 m. The connection is achieved via an unscreened standard cable with M12 connectors.

This technology is particularly interesting for packaging machines, both commercially and technically. Flexi Loop both almost entirely eliminates the current costs for wiring and for safety inputs and outputs, and, unlike conventional series connection, detects if consequential errors are "masked" by the series connection. Furthermore, unlike discreet wiring, the response time of the whole system is reduced, as the response time of Flexi Loop is significantly shorter than the sum of the response times of the individual sensors. As the Flexi Loop strand monitors each sensor individually, it provides comprehensive diagnostic information during running operation. The duration and costs of machine down time in a packaging line are thus minimized in an efficient manner and availability is optimized.

### **Link machines, network safety**

The efficacy of safety oriented optimization of individual machines is, however, dependent on linking the control systems of the individual system modules and integrating their safety functions process logically through the bi-directional communication of the safety signals. The Flexi Line functionality upgrade enables up to 32 machine elements of a complete packaging line to be networked safely, without additional modules and over distances of up to 1,000 m between the stations. In this way, established and simulated safety functions can be installed easily during final assembly or commissioning at the end customer's installation – without additional electronic components, or extra expenditure on software or programming. Thus the addition of machine modules and their control systems for safety purposes can be achieved in the simplest and most efficient way. If the system is extended, machines are replaced or the machine sequence is modified, new addressing does not have to be carried out - the new topology is confirmed without addressing by "Teach".

### **Safe drive monitoring during operating and maintenance**

If persons are likely to be in the vicinity of hazardous machine movements, e.g. during the stocking of packaging materials or during installation or maintenance operations, safety monitoring of the drive is essential. For this purpose, the multi-functional Flexi Soft Drive Monitor motion control module provides the highest level of safety. Drives without integrated safety device functionality can also be monitored for the protection of persons in the immediate vicinity of a hazardous point. An additional benefit is the migration capability of safe drive monitoring with Drive Monitor. Expansion of up to six Drive Monitor modules is possible – ideal for achieving intelligent multi-axle applications with up to twelve drives.

Flexi Loop, Flexi Line or Drive Monitor – the versatility of the solutions assists companies in the packaging sector with rapid and unrestricted adaptation and optimization of their system design, and thus the value creation chain of their customers, to suit market conditions.