

Among the Smallest in its Class

## TRANSPONDER-CODED GUARD LOCKING DEVICE FOR THE PACKAGING INDUSTRY



The new transponder-coded CTM guard locking device has been specially developed for use on small flaps and light-weight doors on packaging machines and is particularly impressive due to its small dimensions. It is one of the smallest guard locking devices on the worldwide market and provides process and personnel protection in the smallest of spaces. The ball actuator supported on an elastomer bearing can secure doors with extremely small pivoting radii. The guard locking device can be integrated almost invisibly into machines, providing design engineers with greater freedom. The CTM guarantees the highest degree of protection IP69 and is available as a hygienic version. Its smart communication capabilities additionally ensure compliance with today's and tomorrow's Industry 4.0 requirements.

Digitalization and automation are proliferating in many industries, and the packaging industry is no exception. Moreover, packaging lines for drugs, health care, cosmetics, foods, drinks and other products run at high speeds and operate with short cycle times. The use of fast robots can often lead to very high throughput rates. These highly automated processes must meet very stringent safety demands, irrespective of whether these processes involve primary, secondary or final packaging. The underlying, generally applicable EU Machinery Directive 2006/42/EC and

the EN 415-10 standard prescribe detailed protective measures for various types of packaging machines and their peripheral equipment, including the upstream and downstream conveyors, gripper systems and palletizers. Equipment requiring protection can include doors, flaps, safety fences and other safety devices. For example, hazards arising due to moving parts, rotating components and high temperatures must be ruled out by additional design measures.

### Interplay between economy, availability and safety

It goes without saying that safety systems such as light grids, sensors and guard locking devices in machines and installations must be highly reliable. On the other hand, the protective measures must be designed to avoid interrupting production sequences while also maintaining a high level of system availability. In other words, economic concerns must be perfectly balanced against machine availability and safety requirements. EUCHNER put these aspects first and foremost when designing its latest innovation.

## Compact size tailored to packaging equipment

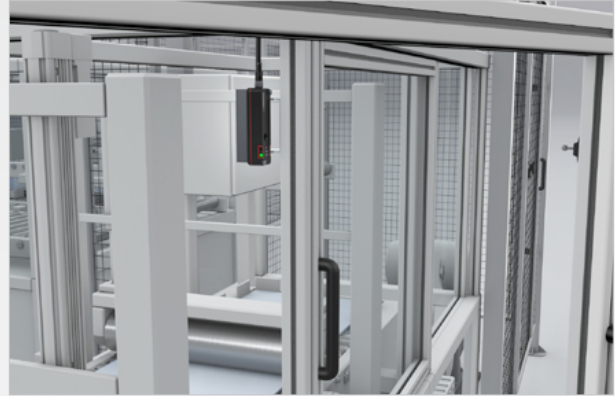
EUCHNER developed the CTM guard locking device specifically to meet the particular requirements in the packaging sector. This new, innovative product was the result of close collaboration with customers from this sector. The packaging sector tends to prefer more compact switches and safety systems that can be installed so as to be nearly invisible, while using more and smaller doors with much lower locking forces than encountered in machine tool manufacturing, for example. Typical applications include case packers as well as dosing, filling and sealing machines. The CTM's design predestines it for use in this sector. Measuring only 120 x 36 x 25 mm in size, the CTM is particularly easy to fit into the housings of filling and packaging machines. Another advantage in view of the frequently limited space in packaging machines is the innovative ball actuator supported on an elastomer bearing: it can secure doors with pivoting radii as small as 150 mm.



► An innovative ball actuator on the CTM series is an ideal solution for even the smallest door radii in machines where space is at a premium.

## Smallest transponder-coded guard locking device offers maximum protection

Although the CTM is one of the smallest transponder-coded switches with guard locking, compactness doesn't mean less safety. Despite its small size, the CTM provides reliable Cat. 4 / PL e safety door protection according to EN ISO 13849-1. In other words, the CTM achieves the highest safety level for machines and people. The new product's bistable guard locking function always ensures maximum protection if the power should fail or when the installation is switched off, because the system



► The CTM series' **bistable guard** locking function prevents people from locking themselves in if the power should fail.

will remain in its current state. If guard locking of the switch was previously actuated, the door will remain reliably locked. If guard locking was deactivated, the door can be opened and closed again as before. It is virtually impossible to trap people unintentionally. Approved for the protection of persons, the flush guard locking device with transponder coding supplements the magnetic guard locking used in packaging technology as standard. The CTM boasts a high coding level, and its 1,000 N of locking force is more than sufficient for most packaging industry applications.

## Special hygienic version for packaging food and drugs

EUCHNER prioritized the development of a hygienic design for the switch to provide yet another benefit for applications in the food and pharmaceutical sectors. The design includes special surface qualities and carefully chosen inner and outer radii. The red-and-black CTM guard locking device base model is designed according to hygienic aspects for easy cleaning. The housing was designed to prevent any contamination or cleaning agents from accumulating in recesses. What's more, the switch meets safety class IP69, meaning the housing can easily withstand high-pressure and stream-jet cleaners. To ensure optimum levels of cleanliness, the actuator opening is designed as a through hole, making it easy to rinse thoroughly. EUCHNER supplements the basic version with a special variant incorporating exclusively food-safe materials. For example, the plastics used in this blue-and-black version comply with EU Regulation (EC) No. 10/2011. With its smooth surfaces, rounded edges and materials resistant to cleaning agents, the hygienic version is ideally suited for use in the first packaging of foods, medical instruments or drugs.

This special version is also the perfect choice for bottling liquid care and wellness products or beverages. There is currently no other guard locking device on the market that has been designed with such a focus on hygiene and chemical resistance.



► A CTM version specially designed to fulfill all **hygiene standards** in the food industry can be used in machines for packaging anything from meats to chocolate, for example.

### High energy efficiency minimizes power consumption

Energy efficiency is playing an increasing role in packaging technology, just as in all other areas of mechanical and systems engineering. The many safety switches and guard locking devices required in a packaging line consume a relatively significant amount of power, which is why designers of such systems are increasingly paying attention to limiting the power required by the integrated systems. Designed for economy, the switches from the CTM series draw only 500 milliamperes for 70 milliseconds when the solenoid polarity is reversed – not least thanks to the bistable guard locking principle. The current draw during continuous operation is only 50 to 70 milliamperes.

### Ready for Industry 4.0 thanks to smart communication functions

Up to ten CTM guard locking devices can be electronically rowed up in the field. Moreover, the design engineer can easily connect them to other EUCHNER devices. For example, the hot-pluggable systems can be coupled with the new safety module ESM-CB to supply a steady stream of process data from the system to the higher-level control systems via the IO-Link Master. The safety module acts as a safety relay while maintaining a dialog with the connected devices. For each switch, it polls information such as the system state, the ambient conditions and other details in real time, including the temperature in the switch interior, the current applied voltage and the number of switching cycles. Networking the guard locking devices in this way provides a wealth of diagnostic and analysis options for the packaging system operator. The smart communication functions offered by the integrated network are also ideal for use in Industry 4.0 applications, such as for predictive maintenance. Packaging machine and peripheral equipment designers looking to the future are on the safe side in this respect with the CTM series from EUCHNER.

### Facts & Figures at a glance

- Easy mounting, compact housing
- Innovative guard locking principle, bistable guard locking
- Locking force 1,000 N
- Flexible ball actuator for very small door radii
- Industry 4.0 ready through intelligent communication
- Hygienic version additionally available
- Maximum safety level: Category 4 / PL e according to EN ISO 13849-1
- Simple wiring and series connection