Application Report

Muting with complete sets

Premounted Safety Sensor Sets simplify the setup of access guarding

Machine manufacturers wishing to implement access guarding with muting are often confronted with the problem that numerous individual components need to be ordered, installed and matched to one another. This can be performed faster and easier with premounted and preconfigured Safety Sensor Sets, such as the* CPSET *from Leuze electronic. This experience was made by J. B. Maschinen- und Anlagenbau GmbH.

J. B. Maschinen- und Anlagenbau, based in the northern German town of Lamstedt, has produced machines and systems for transport and handling in the wood industry since 1997 (Figure 1). Because these highly efficient systems contain various hazard locations, they must be appropriately safeguarded in accordance with the European machinery directive. In this regard, it is often necessary for the material that is being processed to be able to pass through the protective device without restricting productivity. For this purpose, robust protective devices that include the so-called muting function and that can be easily integrated in the safety system of the system are required.

Components increase complexity

Up to now, this was accomplished by ordering various components - in some cases, even from different suppliers - and then, with great effort, connecting them to create a safety system. This considerable effort associated with the installation, alignment and integration of the safety technology into the switch-off circuit of the machines was impetus for J.B. Maschinen- und Anlagenbau GmbH to shop around for a complete system for the safeguarding of access points with material infeed. General Manager Mr. von Holten said in this regard: "We need economical, easy-to-mount and reliable complete systems." The requirements on such a system included, among others:

- Complete system with integrated muting control
- Simple integration in the safety circuit of the machines and systems
- High availability, even in noisy environments
- Freedom from interference—the system does not need to be adapted to the safety technology

This was easily solved with CPSET from Leuze electronic, based in the Swabian town of Owen/Teck (Figure 2). CPSET are customized complete systems consisting of optical protective devices for access safeguarding and feature an integrated muting function.

Complete systems with muting

As the systems and the requirements at J.B. Maschinen- und Anlagenbau show, access safeguarding systems that utilize optical protective devices with muting function often consist of numerous components that must be electrically and mechanically matched to one another in order to ensure both safety as well as availability. Even during the planning phase, it may be difficult for the designer to select the right components. The time spent during commissioning at the installation site also proves to be critical, as does the knowledge required of the installation-site personnel for ensuring proper configuration. With the CPSET Safety Sensor Sets, Leuze electronic provides well-thought-through solutions that incorporate these requirements. They include select and ready-prepared components for the respective application cases (Figure 3). Muting applications can therefore be implemented quicker, easier, and frequently more cost-effectively.

One order—everything is delivered ready for use

The CPSET-M24 used by J.B. Maschinen- und Anlagenbau includes, in addition to the COMPCT*plus* muting transceiver, the device columns, Deflecting Mirrors, muting sensors, mounting brackets, connection cables and the display and control unit (Figure 4). This consists of a plastic box with reset button for the start/restart interlock and for overriding following a muting fault (muting restart/override). It includes a LED indicator and is prepared for direct mounting on the hard guard.

The set, with all necessary components, can be ordered by specifying just a single CPSET part no. - instead of many individual items. This simplifies the ordering process immensely. Everything needed arrives on the same day - premounted and ready for use.

The customer-specific presetting of the "intelligent" muting transceiver, i.e. configurable for various application cases, effectively prevents false alarms caused by interference, such as wood shavings or gaps in the muting object. With its secure relay output, the system can easily - and with no additional costs for safety relays - be integrated in the switch-off circuit of the machine.

At J.B. Maschinen- und Anlagenbau, CPSET-M24 ensures that access safeguarding can be put into service quickly out-of-the-box and that a safe system with high availability is delivered to the end customer. The good cooperation with the Leuze electronic field staff (Figure 5) has resulted in the CPSET-M24 being adapted to meet the specific requirements of the customer. The system is now used both quickly and troublefree as standard access guarding by J.B. Maschinen- und Anlagenbau. Mr. von Holten summarized this as follows: "With the CPSET series, Leuze electronic has brought an economical solution to the market for the customer."

Many sets for various applications

Solutions are available for other applications as well: the CPSET product line from Leuze electronic has been expanded to meet demands and now includes many variants for every conceivable type of access guarding and muting situation - regardless of whether sequential or parallel muting with 2 or 4 sensors. In addition, the CPSET-M12, for example, includes an induction loop with corresponding evaluation unit for the secure activation of the muting function, e.g. by an approaching forklift.

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Information about CPSET-M24

The core element of every CPSET is a COMPACT*plus* muting transceiver or a Multiple Light Beam Safety Device of type 4 acc. to IEC/EN 61496-1 or SIL 3 acc. to IEC 61508. The CPSET-M24 Safety Sensor Set includes the muting transceiver and is used for 2-beam access guarding with 4-sensor sequential muting. The set is preconfigured. Nevertheless, adaptation by means of switches in the sensor or via the SafetyLab PC software are generally possible. As muting sensors, four Reflection Light Beam Devices with parallel beams are used in the "4-sensor sequential muting" operating mode. All cables, except the cable to the cabinet, are included in the delivery contents. The muting sensors and reflectors are already mounted at the factory on the MMS Muting Mounting System's fixing component. The MMS Muting Mounting System includes a mounting bracket with Light Beam Devices and reflectors for 2- and 4-sensor muting applications, all premounted at the factory.

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Selection of images

Figure 1. Systems for transport and handling in the wood industry

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Figure 2. CPSET *in a handling system for the wood industry*

Figure 3. Detailed view of the UDC *device column with muting transceiver (in the column) and mounted* MMS *Muting Mounting System, including prewired muting sensors*

Figure 4. CPSET-M24 *with display and control unit (upper right)*

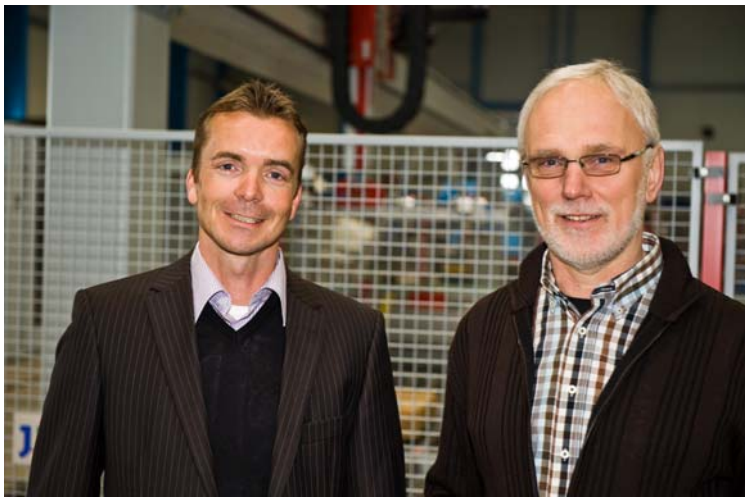

Figure 5. General Manager Mr. von Holten (right) meeting with "the sensor people", field staff member Frank Bröcker, for example