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Tiny things for maximum effect

At SPS IPC Drives 2016, the Schmersal Group showcased a new range of opto-electronic safety equipment with a clear unique selling point. The SLB 240/440/450 is the smallest range of safety light barriers in the world with built-in evaluation.

The current trends in machine and plant engineering include increasing levels of performance density: Machines need to fit into the smallest space possible, which is to do with the fact that it is often used to replace existing machines and the users want increased performance and productivity.

Opto-electronics replaces disconnecting safety equipment

In assembly and handling technology, close cooperation between humans and machines is a central, albeit not predominant trend. Human robot cooperation is well beyond the prototype stage and is now being used in practice. In machine safety, functions which were originally taken over by hardware components are shifting to software, and traditional disconnecting safety equipment with electromechanical safety switches is increasingly being replaced by contactless opto-electronic safety equipment. The benefits are clear: The operator has a clear view of the working area, no safety doors are required and the safety equipment is significantly more flexible thanks to functions such as muting and blanking because it can distinguish between people and materials.

Premiere for the littlest safety light barrier

The Schmersal Group is responding to all three of these trends with a new range developed in the opto-electronics department in Mühlendorf/Inn. The new safety light barriers

in the SLB 240/440/450 range have built-in evaluation and are characterised by their extremely compact dimensions, meaning they fit well into the systems around them and can be fitted quickly and simply even into confined spaces. The SLB 240/440 models with cable connection require space of 28 x 32 x 72 mm (W x H x L), while the versions with connector sockets are 28 x 32 x 91 mm. But compactness is not act the expense of range: both models have a range of 15 metres. The third model, the SLB 450, has a very robust casing with a round cross-section and 49 mm diameter and a range of up to 75 metres.

Wide range of applications

The single beam safety light barriers are particularly useful for securing smaller hazard areas, such as machines with small openings or slots, in PCB loading machines, for example: the safety-oriented opto-electronics system provides reliable protection for the operating personnel, as every interruption to the light beam triggers a signal which safely switches off the potentially hazardous machine movement. At the same time, the working processes are not 'behind closed (safety) doors', but instead are visible and transparent. With this profile of properties, the new safety light barriers have a range of applications, for example, on workstations for assembly and handling and in the wood, paper and printing



The new SLB 240/440/450 range of safety light barriers with built-in analysis and impressively small dimensions.



Safety in system: The signals from the SLB range can be evaluated by the new modular Protect PSC 1 safety controller, for example.

industries. Further application options include (semi-) automatic shelf and order picking systems, high-shelf warehouses and packaging machines, plus providing the boundary for working areas for humans and machines. The SLB 450 version is also fitted with an optional built-in heater so can be used in very low temperatures (down to -30°C). This means it can be used outside, for example in the wood or cement industry, in gravel pits or in docks.

Direct integration into the safety circuit

All SLB light barriers have safe semiconductor outputs (2 x PNP) and can be included directly into the safety circuit, even without external safety evaluation. In accordance with IEC 61496, the new product range complies with the requirements for all Type 2 or Type 4 applications. The safety light barriers can also be used for process protection. One example application: in high-shelf warehouses, they allow object

recognition and height recording. This puts in place the prerequisites for the detection of deviations from pre-defined positions in autonomous transport of packaged products, thus preventing collisions and damage.

Simple installation and setup

All versions have a visual set-up guide which makes commissioning significantly easier. At the same time, they have a 4-way coding level, so that if multiple light barriers are used in one applications, up to four sensor pairs can be operated in one direction without influencing one another. Parametrisation does not require tools such as a PC or commissioning system. A simple command device such as a button is sufficient. Set-up, automatic and restart modes, parametrisation and a diagnostics mode are available.

System solution for safety

The new safety light barriers are a system solution which can be combined with the relevant components of the safety-related control systems, e.g. with the new safety relay modules in the Protect SRB-E range or the new Protect PSC1 safety controller generation. They can also be integrated into safety-related bus system such as AS-i Safety.

Completing the opto-electronic range

The SLB range completes the Schmersal Group's range of opto-electronic safety equipment. Depending on the size and complexity of the hazardous area, the user can select between the SLB light barriers, multi-beam SLG light barriers and the light curtains in the SLC product range.



The opto-electronics range from the Schmersal group also includes safety light grids and light curtains various different sizes and designs.

Extremely compact models are available here too. At the same time, the opto-electronics division also has user-specific special models, e.g. with a special degree of protection (IP69K) or even customer-specific variations. An example: Safety light curtain were developed for a manufacturer of stack cutting machines whose shape matched the outline of the hazard area and the casing.



One example of a customer-specific opto-electronic safety device is the angled version of the SLC 440Com safety light curtain, which has been adapted to the shape of a stack cutting machine.



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