

Technical article, published in:

GIT SICHERHEIT + MANAGEMENT, 12/2019, WILEY-VCH Verlag

## This App is the one!

### A useful new tool: A safety light grid with a Bluetooth interface

Machine safety made easy: Safety light curtains are often used when machines or plants need to be safeguarded but remain easily accessible. At this year's SPS trade fair in Nuremberg the Schmersal group exhibited simple straightforward assistants for installation, periodic inspection and documentation: The new SLC440/COM series with Bluetooth interface and smartphone app offers the user a high level of practical value in everyday business.

Electro-sensitive protective equipment such as safety light grids or safety light curtains can be used to reliably protect a wide variety of hazardous points and hazardous zones. The Schmersal Group has now extended its optoelectronic product range by a further, very practical variant: the new light grids from the SLC440/440COM series with Bluetooth interface BLE and Mobile App. BLE stands for Bluetooth Low Energy, a radio system for the near field range for data transmission with safety transmission capability. The Bluetooth interface enables all status and diagnostic data regarding the operating status of the SLC440/440COM series light grids to be called up on smartphones or tablets in real time. Data communication via smartphones / tablets is made possible via an app developed by Schmersal, which the user can easily download from the appropriate app store, both for Android and iOS devices. When programming the service, great importance was attached to safety: the Bluetooth data transmission from the light curtain to the app is carried out by means of a secure protocol.

This innovative development offers the user a number of practical advantages in everyday operations, in particular significant increases in efficiency.

#### Long range

This series is particularly well suited for areas of machines and plants where access is difficult because of the long range over which data can be transmitted, which is a unique selling point for this system. Until now only a limited few diagnostic tools based on

NFC technology have been available on the market. NFC uses radio waves with a very short range of a few centimetres for data exchange between two devices. In contrast, BLE uses wireless antennas to communicate with smartphones or tablets. This results in a significantly greater range of up to several meters. Wireless communication makes it easy for the user to record the status of a device that is difficult to access via a smartphone at any time.

#### Simple commissioning

Light curtains and light grids comprise an emitter unit and receiver unit which must be aligned to each other. However, precise alignment can sometimes be difficult, for example if the installation is on parts that are not permanently fixed to the machine, such as mounting on free-standing equipment carriers or protective housings on uneven surfaces. The setup aid integrated into this system is therefore a practical tool that makes commissioning and start-up easier: The status information shows not only the general signal strength, but also the quality of each individual light beam. If only one star is flashing the alignment accuracy is not sufficient. If all three stars are displayed, the alignment is perfect. As the status and quality of each individual light beam is also displayed in the app, these all light up green when the sensors are properly aligned

*„We are convinced that the user will find this innovation very valuable in their everyday operations“.*

#### Fast troubleshooting

As soon as the app is opened it lists all safety light grids available in the vicinity. Basic data, such as the serial number or the protective field resolution and the protective field height of the light curtain, is displayed for every device. The signalling devices are easy to identify because the user can assign the available light grids an individual designation. The device status display is particularly important: Here the user can see the operating mode, the status of the OSSD



Fig. 1: All status and diagnostic data on the operating state of the safety light curtain can be called up easily and in real time via smartphones or tablets.

outputs and the protective field status. Information is also given about the supply voltage applied.

„This status information and diagnostic data is particularly helpful to quickly restart the processes after the system has been shut down in a hazardous situation“ explained Klaus Schuster, Managing Director of Safety Control GmbH, which is part of the Schmersal Group as the Centre of Competence for Optoelectronics.

Even unforeseen operating states are reported in real time via the app. In the event of a fault the operating instructions can be called up online via the app as an aid to rectifying the problem and eliminating the malfunction more quickly.

#### **Uncomplicated documentation**

The operator of a machine is not only obliged to test and document the safe use of the machine in accordance with the relevant laws and standards before using it for the first time. They are also obligated to check the safety equipment at periodic intervals in accordance with the Industrial Safety Regulation. The Schmersal-App provides extensive support for this task. Many users take the absolute

operating time of the safety light curtain as the basis for setting the period of recurring tests. The operating hours counter integrated in the app helps the user to schedule and specify the periodic tests. On completion of the test the current status of the safety light curtains can be stored directly on the mobile device.

It is also possible to send the status of the light curtains as an HTML file by e-mail for storage on the company server. Both of these features not only save time, but also bureaucratic effort.

#### **Support for predictive maintenance**

The number of switching cycles performed is counted and in the app. Each interruption of the protective field also increases the number of switching operations of the downstream safety relay module. The relay module must be monitored and replaced at the end of its service life, which is usually determined by an estimated switching occurrence. The switching counter in the app and the precisely determined service life is used as the foundation for service planning and as the basis for predictive maintenance.

„We are convinced that the user will find this innovation extremely useful in their everyday

operations. It enables the user to have the device status of their optoelectronic safety systems continuously under control and facilitate the elimination of faults more quickly. This is a major advantage in the effort to keep processes running smoothly“, said Klaus Schuster.

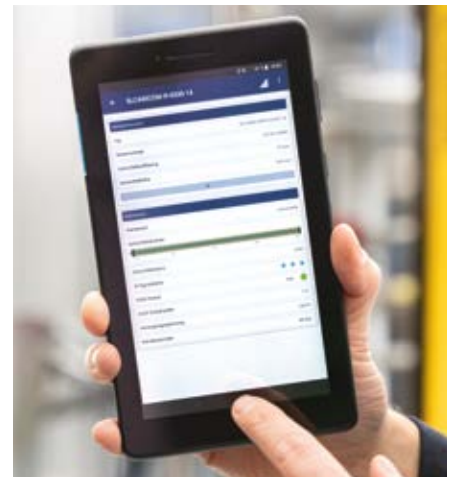


Fig. 2: The app provides basic data for each individual safety light grid, such as the product version, serial number or protective field resolution.