Multifunctional Safety Light Curtains
SLC/SLG 440 - 445

SCHMERSAL

Safe solutions for your industry

SLC/SLG 445

One Design

- ■ **Multifunctional:**
  Blanking, double reset, muting, EMD
  Adaptable to any application with various
  functions in one version.

- ■ **Unique:**
  No other manufacturer integrates all these
  features in one product.

- ■ **Efficient:**
  Parameter setting without external tools
  (PC / software).

- ■ **Robust:**
  The closed sensor profile offers an optimal
  protection under extreme mechanical loads.

Multiple Solutions

■ **User-friendly:**
Integrated set-up tool and large status display (end cap). Reduces assembly expenditures and costs of the plant.

■ **Budget-friendly:**
Due to the integrated functions, no external switchgear is required.

■ **Ecological:**
High protection class - safe and reliable operation under rough ambient conditions.

■ **Resource-efficient:**
Compact dimensions and low weight. New design with 50% less material

Optoelectronic safety devices

The SLC/SLG 440 - 445 product series are an efficient solution for automated process cycles, offering the highest protection of man for the user. It provides for a smooth and flexible adaptation to any machine concept by means of the integrated functions, which can be parametrized without any tools whatsoever (PC / software). The protective targets can be smoothly and effortlessly implemented if changes to the process lead to modified settings such as fixed and dynamic object blanking with variable periphery. The integrated set-up tool and status indication (7 segment display) reduce the installation expenditure and keeps the operator informed about the current operating status when the machine is running.

- Process safety with highest availability
- Reliable safety concept in case of interferences (EMC, welding sparks)
- User-friendly parameter setting, no tools required
- Integrated set-up tool

Market requirements and application usage

The users of opto-electrical protection equipment prefer systems that can be easily integrated in the surrounding structure and are operational quickly. A high level of availability is a prerequisite. Some machine and plant manufacturers are seeking a cost effective standard solution without any additional functions, others require just these functions to ensure an optimal integration of the protection equipment in the production processes.

Application usage of safety light barriers and light grids are varied. Some examples:
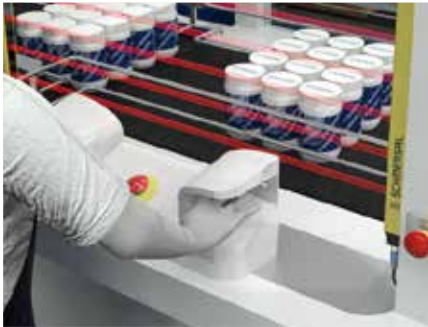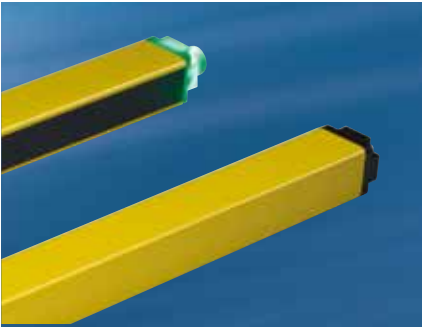
- Assembly workstations (hand and finger protection)
- Presses and other equipment of the metal processing industry (hand and finger protection)
- Robotics and assembly cells (zone protection)
- Flexible conveyor system (differentiation between people and material)
- Protection of cluttered production areas (double acknowledgment).

This requirement profile shows: There has to be more than just one range. That is why Schmersal has developed the three product ranges SLC/SLG 440-445 that are based on the same technology and construction form, and cover all requirements.
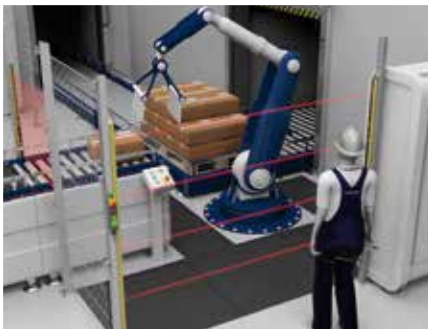
Overview

SLC/SLG 440 COM
The compact solution

A range flexible in its use, whereby the protective field height corresponds to the profile length this makes it ideal for compact constructions. All standard functions are present but no more. The profile length corresponds to the protective field height to allow for optimal installation with the application.

SLC/SLG 440 standard
For classical safety requirements

Universal usage, easy to use when setting up and entering the parameters with its 7 segment display. Parameters like object blanking beam coding, contactor control and double acknowledgement can be set without any aids.

SLC/SLG 445 Multifunctional
The all-round All-rounder

The high end range portfolio. Everything that the SLC 440 range offers and even more: Multi-scan function to blank interferences, muting function to determine between people and material, and a cycle function. Use for the highest level of productivity and flexibility at the man-machine interface.
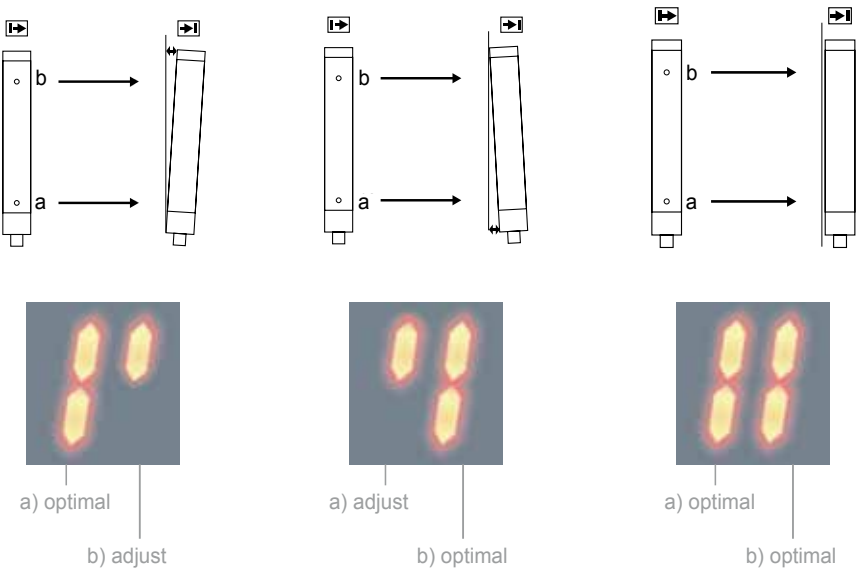
The all-rounder for your safety – SLC 445

Safety and profitability - that is what many manufacturers promise. However, we are the only one, who can offer one product featuring this variety of integrated functions without external tools.

- Automatic and restart interlock mode
- EDM contactor control
- Double acknowledgement/reset
- Stationary and dynamic object blanking
- Blanking with movable edge region
- Beam coding
- Status and diagnostic indication
- Integrated set-up tool
- **Multiple sampling**
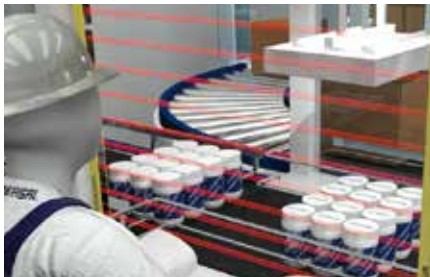- **Muting**
- **Cyclic operation**

Availability and status
User-friendly set-up tool

a) optimal

b) adjust

a) adjust

b) optimal

a) optimal

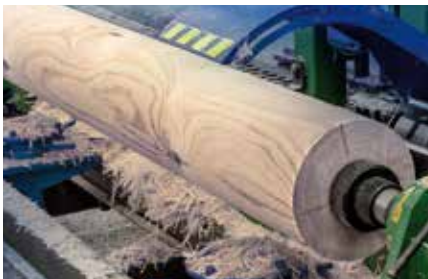b) optimal

a = Second beam
b = Last beam

Area and hazardous point protection

Profitable hazardous point protection featuring low space requirements, undisturbed access to the process and the highest user comfort.

Multiple sampling

When using machines for wood or metal processing, shavings result as part of the working process, which can impair the protection equipment (light barrier or zone protection). The protection area multiple sampling ensures trouble-free operation.
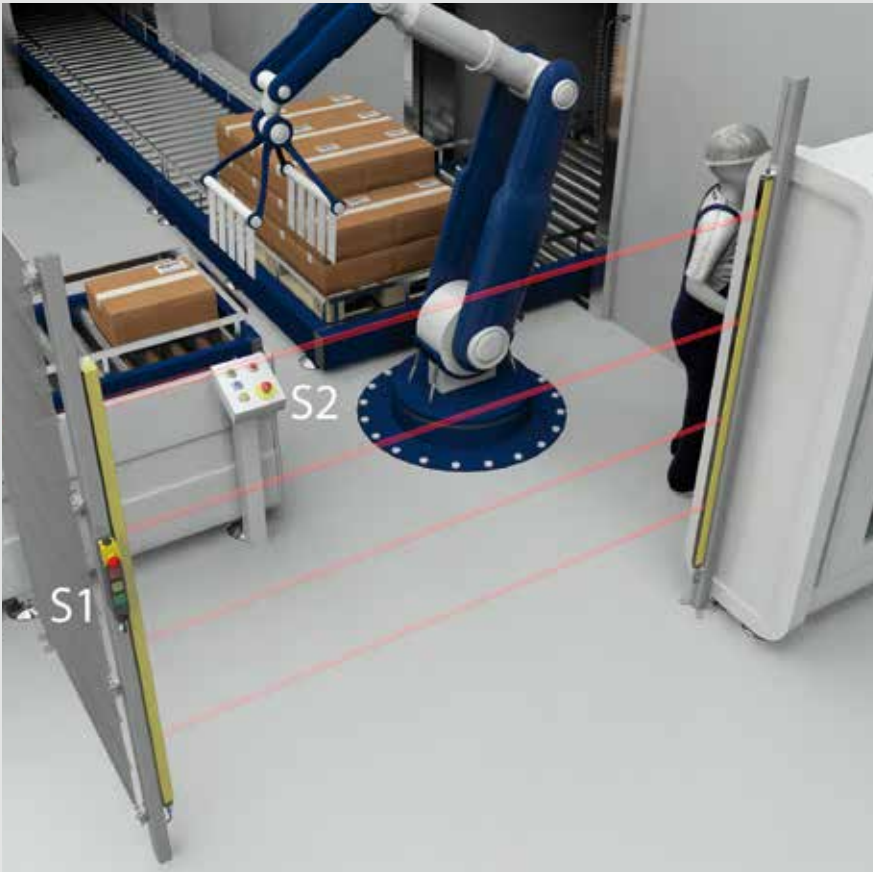

Configurable muting

Multi functional parameters settable without aids

- Muting signals 2 or 4
- Arrangement of MS sequential or diagonal
- Bridging of object gaps
- Muting END extension
- Partial muting height
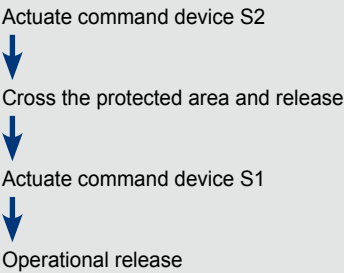- Belt-stop and override
- Enable input muting

Double acknowledgement

Large production areas which are only partly visible, present multiple risks which include persons walking behind the safety equipment, or third parties pushing the acknowledgment button thereby inadvertently restarting of the machine.

The solution: the SLC/SLG 440-445 integrates the function "Double acknowledgment". The additional input is integrated in the receiver.

As soon as anyone enters the hazardous area the hazardous movement is stopped. The safe release is then carried out.
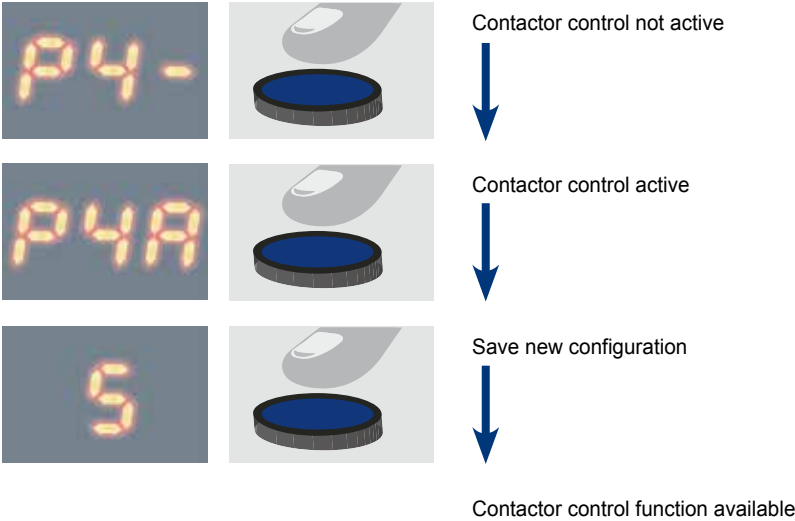
Actuate command device S2

↓

Cross the protected area and release

↓

Actuate command device S1

↓

Operational release

Parameter setting

Simple and quick - without tools

The function selection is implemented in parameter setting mode. To that effect, the 7-segment display offers a parameter selection, which is selected in a user-friendly manner by means of a command device (button/enabling switch) instead of a PC and software and permanently saved.

Example: Activate contactor control

Contactor control not active

↓

Contactor control active

↓

Save new configuration

↓

Contactor control function available

Advantages

- Simple menu navigation
- Very fast implementation
- No tools required
  (PC, software, external parameter setting units)

Technical data

Features	SLC/SLG440COM	SLC/SLG440 Standard	SLC/SLG445 Multifunctional
Type	Safety light grids / light curtains Type 4	Safety light grids / light curtains Type 4	Safety light grids / light curtains Type 4
Application	Hazardous point and area protection	Hazardous point and area protection	Hazardous point and area protection
Resolution	14, 30, 35 mm	14, 30 mm	14, 30 mm
Protection field height	330 mm … 1770 mm, depending on resolution	170 mm … 1770 mm, depending on resolution	170 mm … 1770 mm, depending on resolution
Range	0.3 ... 12 m, depending on resolution	0.3 ... 12 m, depending on resolution	0.3 ... 20 m, depending on resolution
Response time	10 … 20 ms	10 … 27 ms	10 ... 37 ms
Operating mode	Protective mode / Automatic Restart interlock (manual reset) Diagnostic and setting mode	Protective mode / Automatic Restart interlock (manual reset) Diagnostic and setting mode	Protective mode / Automatic Restart interlock (manual reset) Diagnostic and setting mode **Muting and cyclic operation**
Function	---	Contactor control Double acknowledgement/reset Floating and fixed blanking of objects Beam coding	Contactor control Double acknowledgement/reset Floating and fixed blanking of objects Beam coding **Multiple scan Special operating mode**
Synchronisation	Optical	Optical	Optical
Status indication	Illuminated element/end cap	LED and 7 segment illuminated element/end cap	LED and 7 segment illuminated element/end cap
Safety outputs	2 x PNP (timing)	2 x PNP (timing)	2 x PNP (timing)
Protection class	IP67	IP67	IP67
Termination	Connector M12, 4 and 5 pin	Connector M12, 4 and 8 pin	Connector M12, 4 and 12 pin
Ambient temperature	−10 °C … +50 °C	−25 °C … +50 °C (V2)	−25 °C … +50 °C
Resistance to shock	10 g, 16 ms to IEC 60028-2	10 g, 16 ms to IEC 60028-2	10 g, 16 ms to IEC 60028-2 10
Resistance to vibrations	10 … 55 Hz to IEC 60068-2	10 … 55 Hz to IEC 60068-2	… 55 Hz to IEC 60068-2 27.8 x
Dimensions	27.8 x 33 mm	27.8 x 33 mm	33 mm
Safety level	PL e and SIL 3	PL e and SIL 3	PL e and SIL 3
Standards	EN 61496-1, CLC/TS 61496-2, EN ISO 13849, EN 62061	EN 61496-1, CLC/TS 61496-2, EN ISO 13849, EN 62061	EN 61496-1, CLC/TS 61496-2, EN ISO 13849, EN 62061
Approvals	TÜV cULus	TÜV cULus	TÜV cULus

Product family Type 4

Variants for custom-made concepts

Safety Control at Mühldorf, the Center of Competence for Optoelectronics of the Schmersal Group has developed a wide range of Type 4 safety light grids and safety light curtains for various application requirements.

- Muting connection on the sensor SLC/SLG425I
- IP69K rated version of SLC/SLG440 (not shown)
- Standard SLC/SLG440
- Multifunctional SLC/SLG445 with Muting
- Multifunctional SLC/SLG440
- Compact SLC/SLG440COM

The product variants enable an individual selection of the products for the necessary safety concept and ensure a high level of availability for the different customer requirements.

The Schmersal Group

For many years the privately owned Schmersal Group has been developing and manufacturing products to enhance occupational safety. What started out with the development and manufacture of a very wide variety of mechanical and non-contact switchgear has now become the world's largest range of safety systems and solutions for the protection of man and machine. Over 1,500 employees in more than 50 countries around the world are developing safety technology solutions in close cooperation with our customers, thus contributing to a safer world.

Motivated by the vision of a safe working environment, the Schmersal Group's engineers are constantly working on the development of new devices and systems for every imaginable application and requirement of the different industries. New safety concepts require new solutions and it is necessary to integrate new detection principles and to discover new paths for the transmission and evaluation of the information provided by these principles. Furthermore, the set of ever more complex standards, regulations and directives relating to machinery safety also requires a change in thinking from the manufacturers and users of machines.

These are the challenges which the Schmersal Group, in partnership with machinery manufacturers, is tackling and will continue to tackle in the future.

Product ranges

Safe switching and monitoring
- Guard door monitoring safety switches
- Command devices with safety function
- Tactile safety devices
- Optoelectronic safety devices

Safe signal processing
- Safety monitoring modules
- Safety controllers
- Safety bus systems

Automation
- Position detection
- Command and signalling devices

Industries

- Elevators and escalators
- Packaging
- Food
- Machine tools
- Heavy industry

Services

- Application advice
- CE conformity assessment
- Risk assessment in accordance with the Machinery Directive
- Stop time measurements
- Training courses

Competences

- Machine safety
- Automation
- Explosion protection
- Hygienic design

Precautions have been taken to assure accuracy of the information in this catalogue.
Typographic or pictorial errors that are brought to our attention will be corrected in subsequent issues.

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