



Safety Technology

for Body, Hand and Finger Protection



Safety Technology for Body, Hand, and Finger Protection

wenglor's contactless protective devices (ESPE) provide reliable body, hand and finger protection for danger zones on machines and systems.

High resolution for maximum safety (in accordance with DIN EN ISO 13855)

- Selectable protection levels for body protection through various beam distances (300 mm, 400 mm, 500 mm)
- 30 mm resolution for hand protection
- 14 mm resolution for finger protection

The right protection for every application:

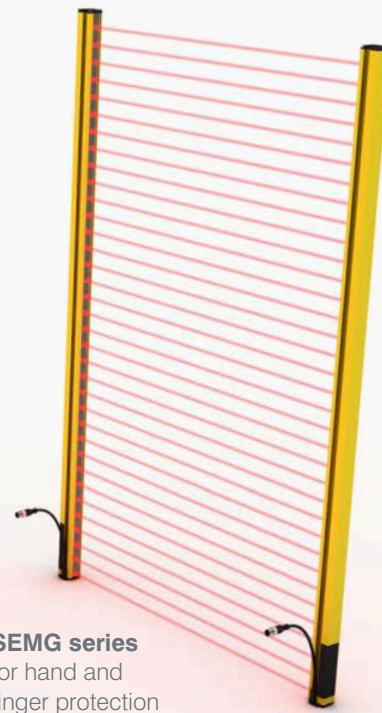
- SEFB safety light arrays
 - Basic function
 - Muting
- SEFB safety light curtains
 - Muting
 - Muting & blanking
- SEMG safety light curtains
 - Basic function



SEFB series
for body protection



SEFG series
for hand and
finger protection



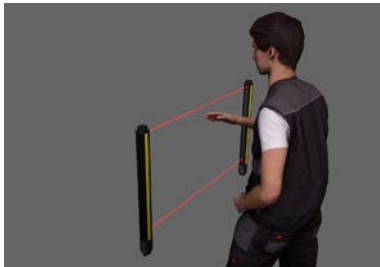
SEMG series
for hand and
finger protection

SEFB Safety Light Arrays for Body Protection

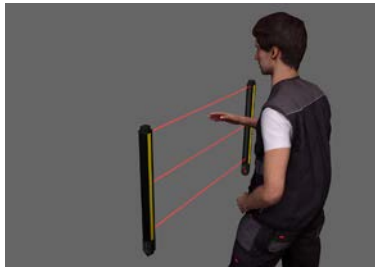


The SEFB series for body protection is characterized by its long range combined with simple operation and initial start-up. Thanks to the integrated display or the smart IO-Link interface, the safety light arrays can be easily configured in a time-saving manner.

Various beam distances for optimal access protection:



2 beams,
500 mm beam distance



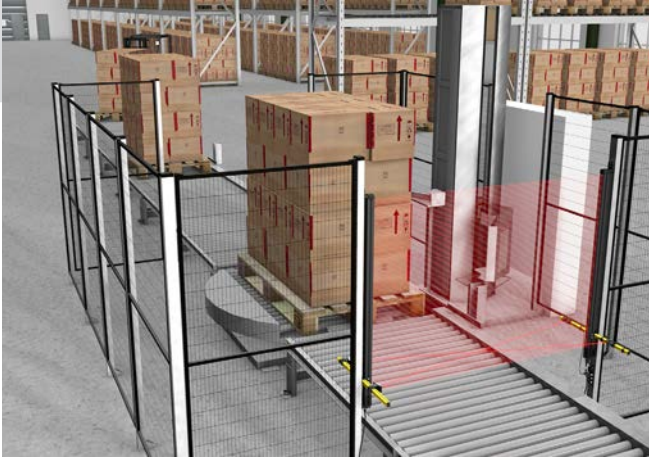
3 beams,
400 mm beam distance



4 beams,
300 mm beam distance

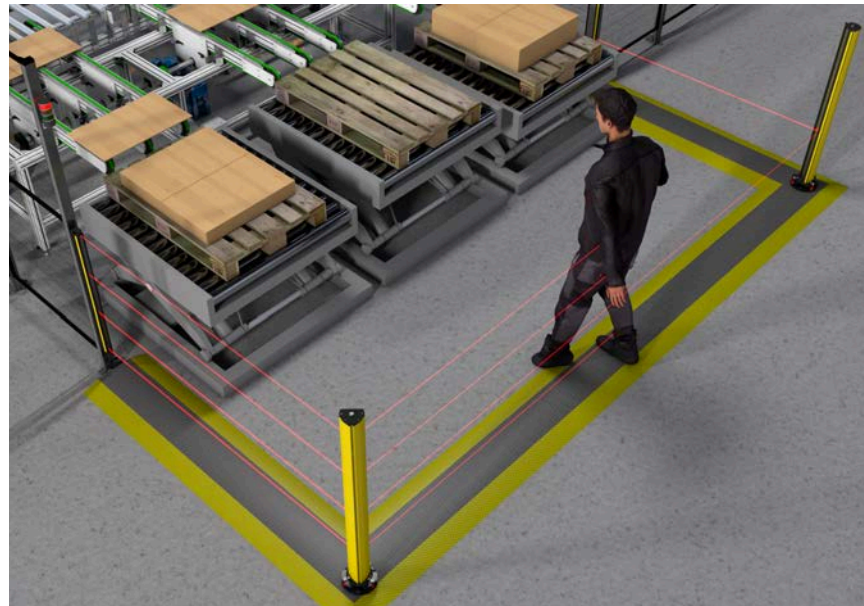
Overview of technical data

- Type 4 according to IEC / EN 61496
- Performance level: Cat. 4, PL e (EN ISO 13849)
- Range: 50 m
- Variants in the functional scope: Basic function, muting



Safe material transport thanks to muting

- Muting function differentiates between human and material flow
- Enables safe material transport
- Increases plant efficiency as processes are not interrupted unnecessarily



Safe access protection up to 50 m

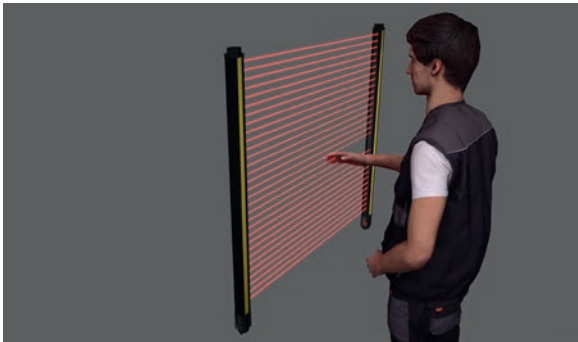
- Reliable monitoring of large danger zones thanks to vertically mounted light curtains
- Multiple sides can be secured via deflection mirrors
- If one or more beams are interrupted, hazardous motion is stopped

SEFG Safety Light Curtains for Hand and Finger Protection

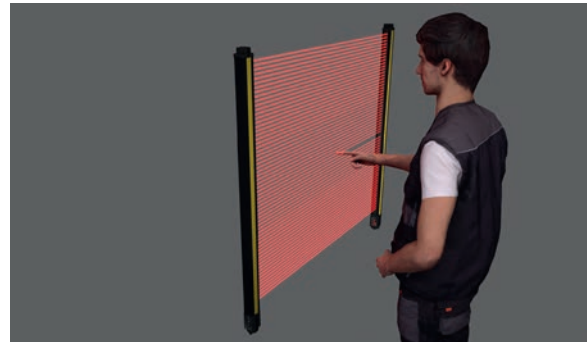


The SEFG series for hand and finger protection is characterized by its versatile functionality with simple operation and initial start-up. The safety light curtains can be easily and quickly configured using the integrated display or the smart IO-Link interface.

Various resolutions for optimal hand and finger protection:



30 mm resolution for hand protection



14 mm resolution for finger protection

Overview of technical data

- Type 4 according to IEC / EN 61496
- Performance level: Cat. 4, PL e (EN ISO 13849)
- Safety field height: 159 – 1,812 mm
- Range: 20 m (hand protection) or 7 m (finger protection)
- Variants in the functional scope: Muting, muting & blanking



Securing hazardous areas plus stepping behind protection

- Cascading of up to three safety light curtains
- Enables checks to determine if a person is in the danger zone of the turntable

Danger point protection with reduced resolution

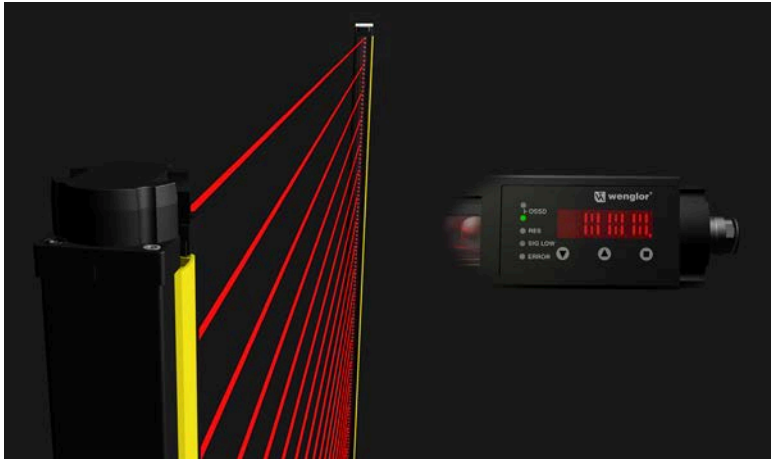
- “Reduced resolution” function
- Small objects, such as thin sheets, do not cause the machine to stop unintentionally



High vibration resistance in harsh environments

- Shock- and vibration-resistant thanks to robust housing design
- Ideal for use in harsh environments

SEFB/SEFG – The Advantages at a Glance

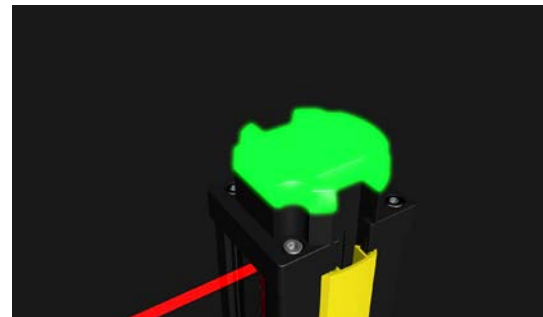


Signal strength indicator

on the integrated display for time-saving and cost-effective commissioning

Integrated indicator lamps

enable 360° visualization for easy status monitoring



microSD card

for quick duplication of device parameters to other devices

Convenient parameter adjustment
and operation of all functions
via the 16-segment display



Visualization of status information

over the entire safety field height with LED indicator
stripes – for even faster detection of machine downtime

Extended temperature range
of -30 to $+55$ °C also enables
use in the deep-freeze area



SEFB/SEFG – The Muting Functions

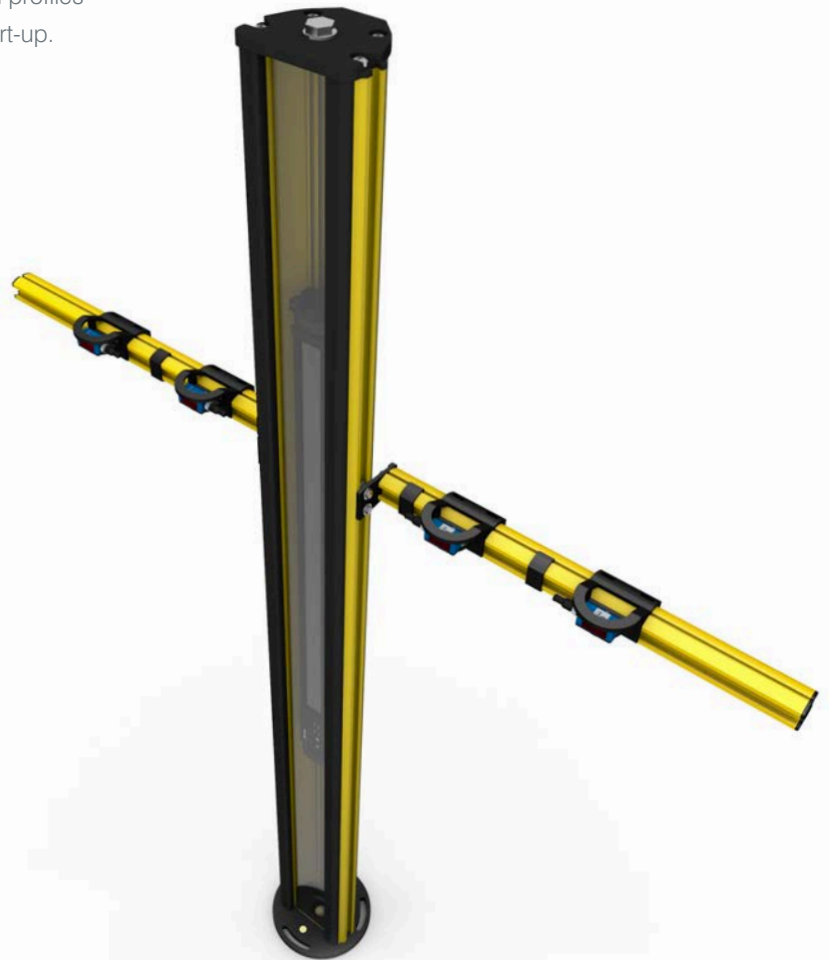
Plug&Play muting

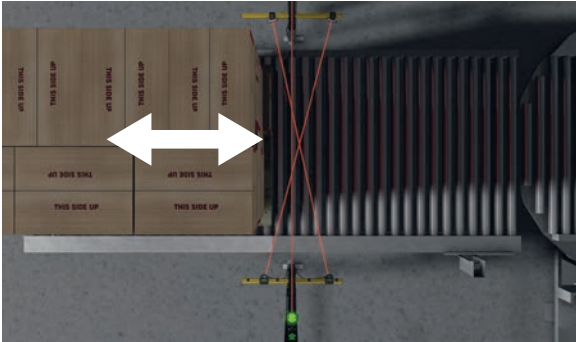
The pre-assembled muting sets on robust rod profiles ensure time and cost savings during initial start-up.

- Pre-mounted muting sensors
- Pre-mounted muting reflectors
- Connection box for muting sensors included in the scope of delivery

Simple installation of muting sets

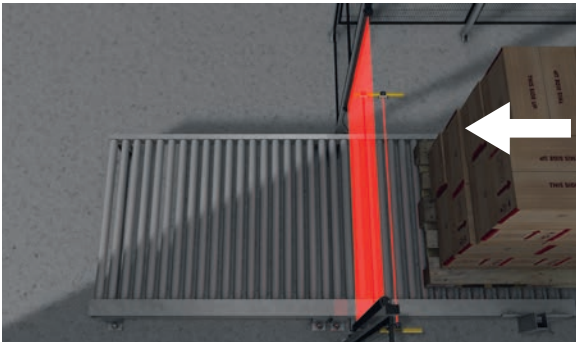
- on protection columns
- on safety light arrays (SEFB)
- on safety light curtains (SEFG)
- on standard groove profiles





2-sensor cross-muting (Z2MG001)

For safe transport of materials into and out of the danger zone



2-sensor linear muting (Z2MG002)

For safe material transport out of the danger zone



4-sensor linear muting (Z2MG003)

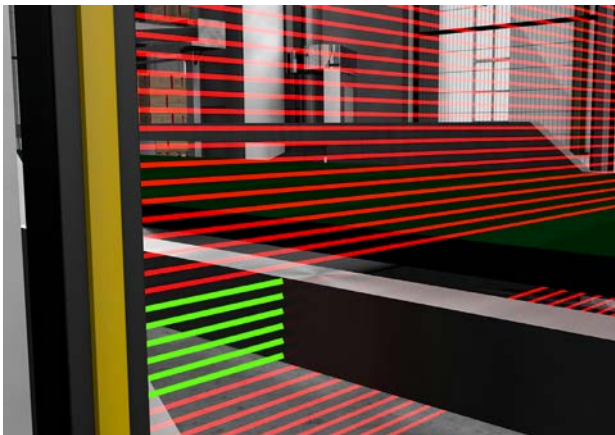
For safe transport of materials into and out of the danger zone with sequence and time monitoring



SEFG – The Blanking Functions

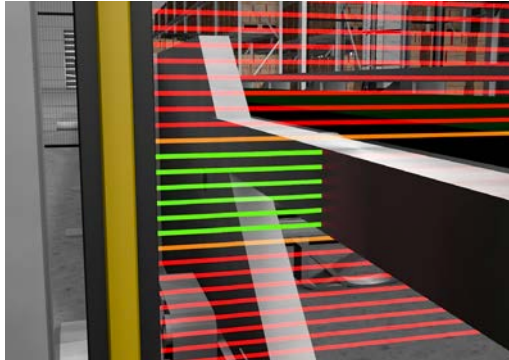
The blanking function ensures increased process reliability and process availability on machines and systems. There are four different sub-functions for this purpose.

- Fix blanking
- Fix blanking with edge tolerance
- Floating blanking
- Reduced resolution



Fix blanking

Fix blanking is required for applications including objects which continuously protrude into the safety field, thus interrupting specific light beams of the light curtain. In order to maintain a high availability of the application even under these conditions, the interrupted beams are excluded from the evaluation. A safety field access at any other point of the light curtain switches the safety output and stops hazardous motion.



Fix blanking with edge tolerance

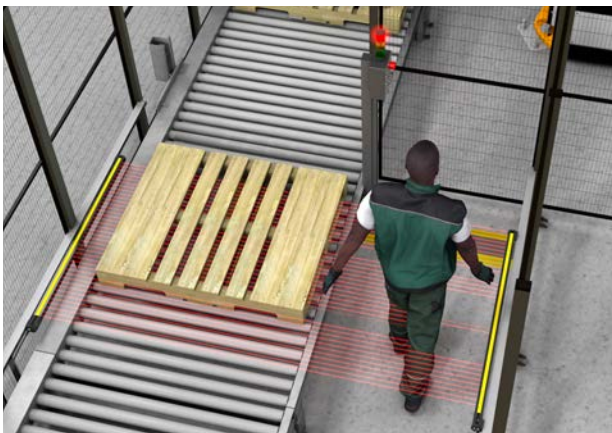
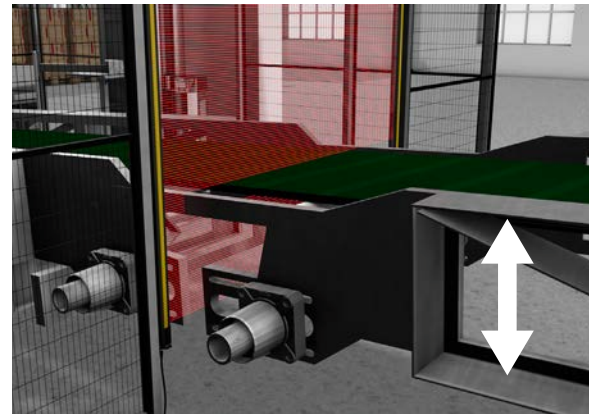
Fix blanking with edge tolerance can compensate for small movements of a fixed object within the safety field. This takes place with a tolerance of one beam.

- Taught-in area
- Edge tolerance

Floating blanking

In certain applications, objects which do not have clearly defined positions are permanently located in the safety field of the ESPE.

These could be cables or tool parts, for example, which move through the safety field for process-related reasons. The “floating blanking” function enables these objects to be hidden.



Reduced resolution

With the “reduced resolution” function, objects (pallets, swarf, lines) up to a defined maximum size can be moved into the safety field without switching off the ESPE. To ensure this function, the resolution of the ESPE is reduced electronically. If an object interrupts the safety field that exceeds the maximum size, such as an operator, the system will stop.

SEFB/SEFG – The Interface Functions

Smart communication with IO-Link

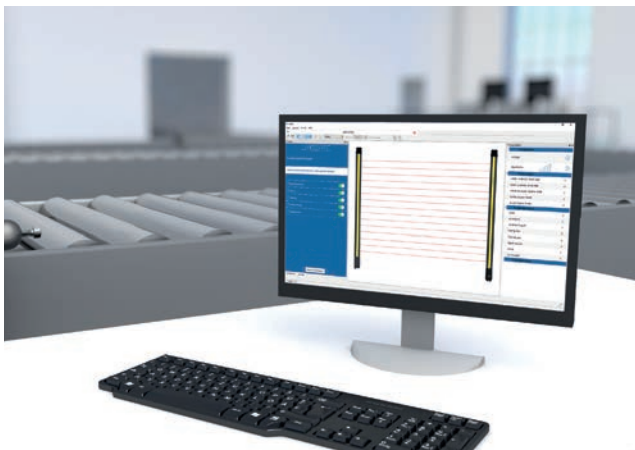
Thanks to the smart IO-Link interface in the SEFB safety light arrays and SEFG safety light curtains, safety and automation are combined, which offers lasting added value.

Condition monitoring

- Extensive diagnostic options
- Quick troubleshooting

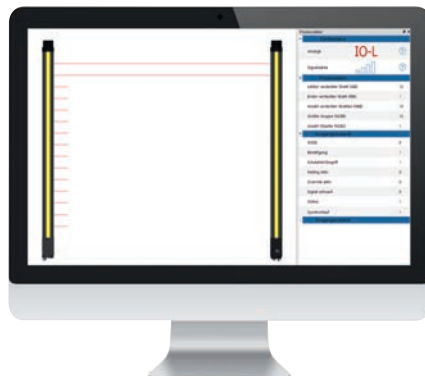
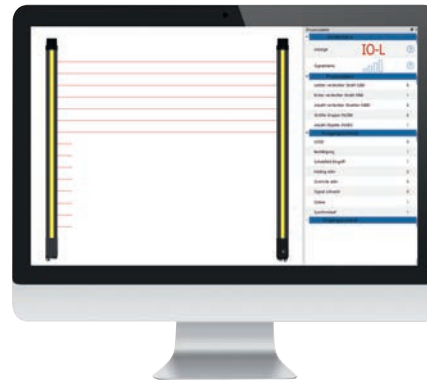
wTeach safety assistant

- Simple and guided configuration for quick and easy initial start-up
- Explanations of each work step and function



Performing height measurements

- Cyclical output of measured values via process data
- Visual display of all beams
- Output of interrupted beams and number of objects present



SEFB/SEFG – The Features at a Glance

3 different beam distances
(300 mm, 400 mm, 500 mm)

Easy alignment
thanks to visible red light

Integrated indicator lamp
for **360° visualization**

Reduced installation time
thanks to simple wiring

Max. range
50 m

Fast duplication of configurations with
microSD card

**12 different safety
field heights**
(159 – 1,812 mm)

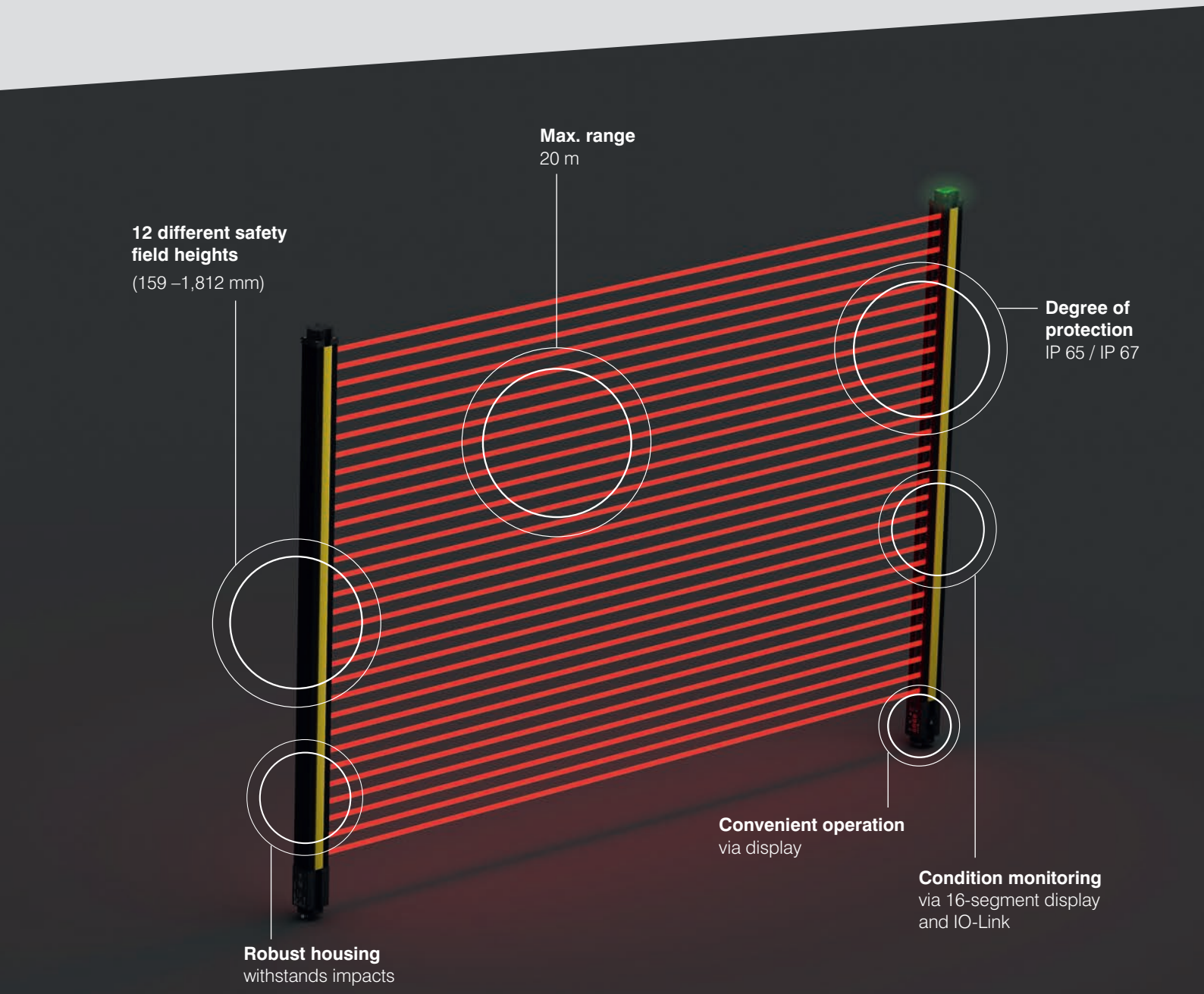
Max. range
20 m

**Degree of
protection**
IP 65 / IP 67

Convenient operation
via display

Condition monitoring
via 16-segment display
and IO-Link

Robust housing
withstands impacts

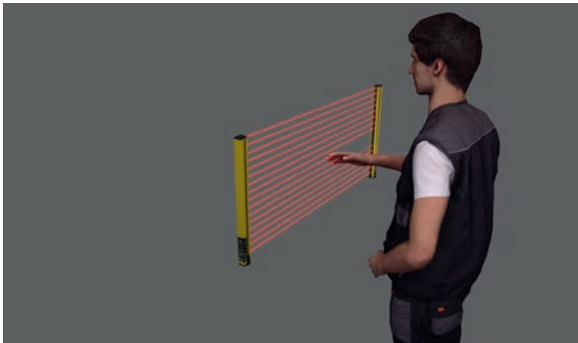


SEMG Safety Light Curtains for Hand and Finger Protection

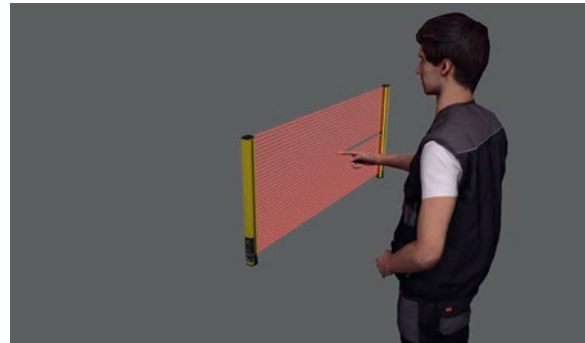


The safety light curtains from the SEMG series are the ideal solution for basic machine safety tasks. The basic functions of safety operation, restart inhibit and contactor monitoring (dynamic monitoring of the switching behavior of the external contactors) are integrated as standard and can be easily configured. Without protrusion, the safety field always extends to the end of the housing.

Various resolutions for optimal hand and finger protection:



30 mm resolution for hand protection



14 mm resolution for finger protection

Overview of technical data

- Type 4 according to IEC / EN 61496
- Performance level: Cat. 4, PL e (EN ISO 13849)
- Safety field height: 326 – 1,827 mm (hand protection) or 250 – 1,811 mm (finger protection)
- Range: 14 m (hand protection) or 6 m (finger protection)
- Variants in the functional scope: Basic function

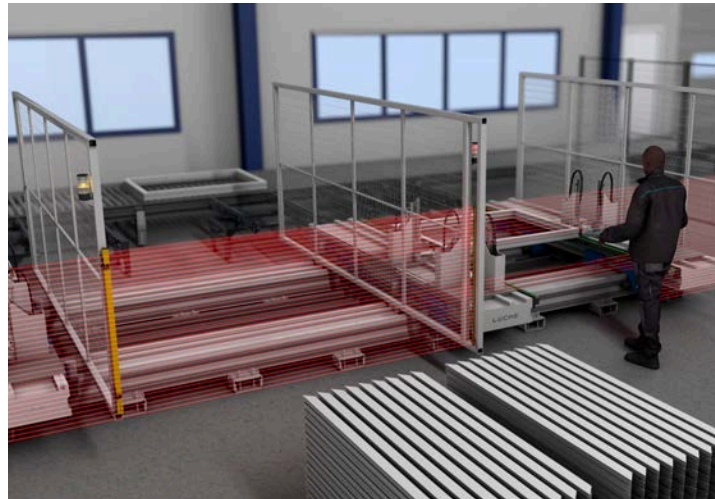


Safeguarding of hazardous areas with reach-in protection

- Flush installation so that no blind spot arises and the system is completely secured
- Safety field is active over the entire housing length
- Slim housing design ideal for confined mounting space

Safeguarding of danger zones with hand protection

- Installation with very low safety distance possible thanks to high resolution
- Dynamic monitoring of several areas over long distances: When a safety zone is entered, the system only stops in this area, operation in other zones continues



High vibration resistance in harsh environments

- Shock- and vibration-resistant thanks to robust housing design
- Ideal for use in harsh environments

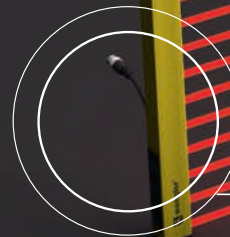
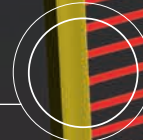
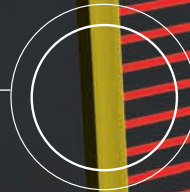
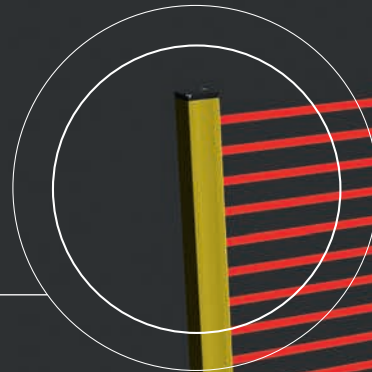
SEMG – The Features at a Glance

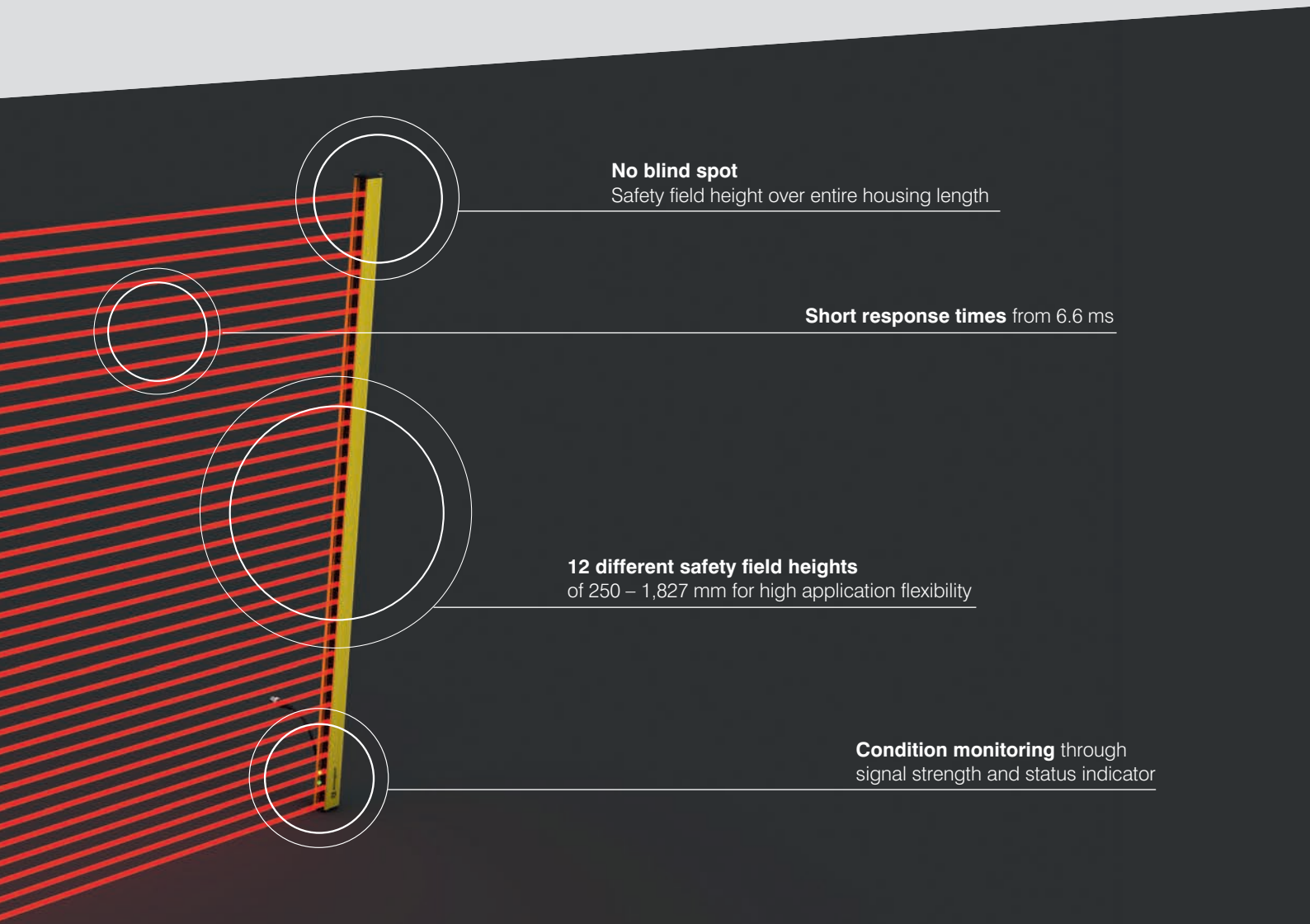
Clever mounting options
for **quick installation**

Degree of protection
IP65/IP67

Quick alignment
with visible red light

Compact housing
(28.5 × 34 mm)





No blind spot

Safety field height over entire housing length

Short response times from 6.6 ms

12 different safety field heights

of 250 – 1,827 mm for high application flexibility

Condition monitoring through
signal strength and status indicator

Plug & Play

Simple configuration via wiring

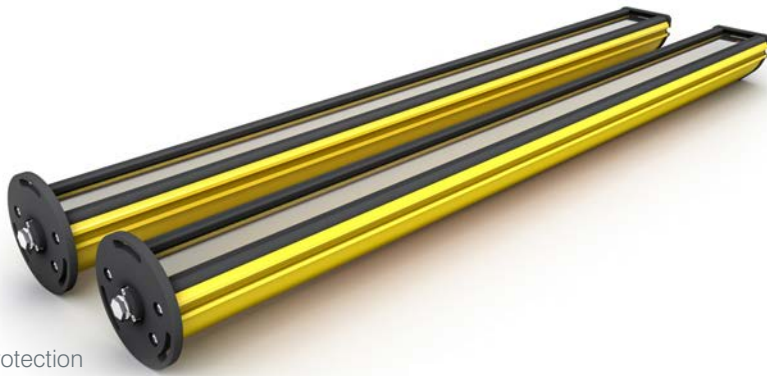
Series Comparison

	Body protection SEFB Basic function
Operational functions	
Safety operating mode/automatic restart	✓
Restart inhibit (RES)	✓
Contacting monitoring (EDM)	✓
Beam coding	✓
Cascading	—
Range switching	✓
Muting	
Cross muting	—
2-sensor linear muting	—
4-sensor linear muting (sequence monitoring/time monitoring)	—
Muting functions	
Adjustable muting time	—
Belt stop signal	—
Muting enable	—
Direction setting	—
End of muting upon clearing the ESPE	—
Partial muting	—
Full muting enable	—
Gap suppression	—
Override	—
Blanking functions	
Fix blanking	—
Fix blanking with edge tolerance	—
Floating blanking	—
Reduced resolution	—
Non-safety-related functions	
Measured value read-out	—
Display setting (segment display)	—
Integrated indicator lamp	—
Alignment tool (signal strength)	—
microSD memory card	—
IO-Link 1.1 interface	✓

		Hand and finger protection		
SEFB Muting	SEMG Basic function	SEFG Muting	SEFG Muting and blanking	
✓	✓	✓	✓	
✓	✓	✓	✓	
✓	✓	✓	✓	
✓	—	✓	✓	
✓	—	✓	✓	
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✓	—	✓	✓	

wenglor Safety Technology – Complementary Products

In addition to safety light arrays and safety light curtains, wenglor also offers many other safety-related products for the protection of machines and system areas.



Protection columns



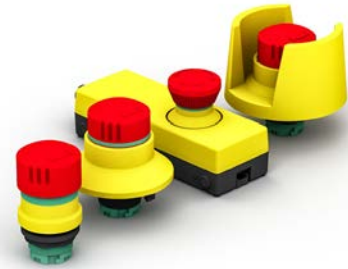
Safety through-beam sensors



Safety relays



Enabling switches



Emergency stop switches



Safety switches/Guard locking devices

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