

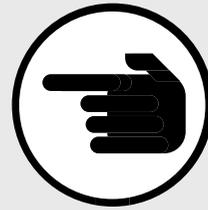


# SH4

**TYPE 4  
SAFETY LIGHT CURTAIN**







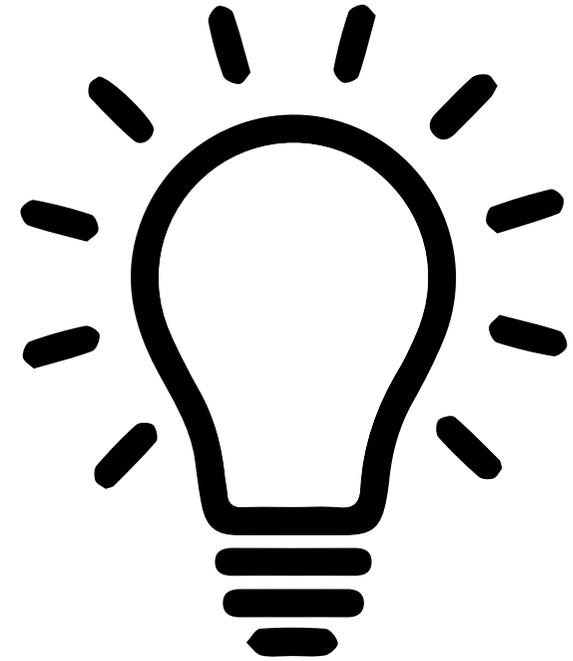
# SH4

## TYPE 4 SAFETY LIGHT CURTAIN

- Complete type 4 safety light curtains line
- Finger (14 mm), hand (30 mm), or body protection
- Improved performance and features
- Compact profile (35 x 40 mm)
- Wide range scalable in Basic, Standard and Advanced models
- Simultaneous muting and blanking
- Innovative wireless monitoring and configuration system
- Optical two beams synchronization and anti-interference coding
- Basic functions: alignment, automatic restart
- Standard functions: manual restart, EDM
- Standard Muting functions: 2-signals mono and bidirectional muting, override
- Advanced functions: partial muting, dynamic partial muting, 4-signals muting, reduced resolution, multiple fixed or floating blanking zones
- Body protection models also available in retroreflective version (2<sup>nd</sup> half 2023)



# COMPLETE: FIT ALL NEEDS



## COUNTLESS SAFETY APPLICATIONS:



Point of operation guarding

**Basic:** no configuration

**Standard:** configuration by wiring



Selective passage of material (Muting)

**Standard muting:**

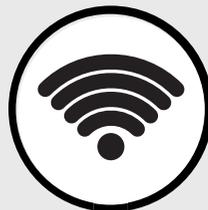
configuration by dip switches

**Advanced:**

Configuration by App using Wi-fi

**Cascade:**

Simply connect to main unit



### MONITORED HEIGHT:

From 300 to 2250 mm  
with 150 mm steps



### DETECTION CAPABILITY:

SH4 offers finger, hand and body detection capability sharing the same mechanics and modules

### FUNCTIONALITY LEVEL AND CONFIGURATION MODE:

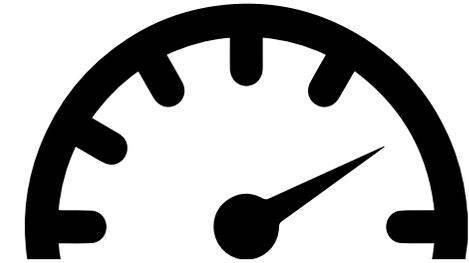
4 different functionality levels for any application and customer preferences.

Dedicated cascade models adapt themselves to the main unit functionality (standard muting or advanced)

### BENEFITS:

- Scalability of the product fitting the real needs
- Easier management of different models for any applications
- Reduction of accessories
- Flexibility in the design of machinery
- Easy passage from one model to another one.

# PERFORMANT: THE BEST DESIGN TO IMPROVE RELIABILITY, SPEED AND FEATURES



Optical synchronization on two beams

**BENEFIT:**

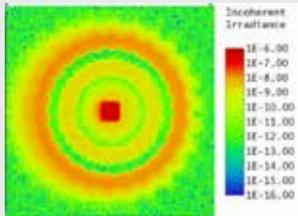
- Emitter and receiver don't need to be connected on the same cable
- The Off-On time following the detection of an object is reduced
- More flexibility in the use of muting and blanking



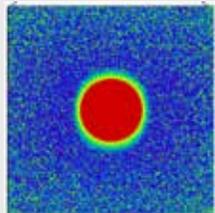
Improvement of optics design to optimize effectiveness of beams

**BENEFITS:**

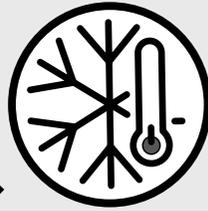
- Longer operating range:  
10 m for 14 mm detection capability  
20 m for 30 mm detection capability  
70 m body detection capability
- Stronger stability in presence of dirt
- Easier and more stable alignment



Standard SLC beam intensity



SH4 beam intensity



Low temperature operating range: -30°C

**BENEFITS:**

Extension to applications in refrigerated areas (i.e. food intralogistics)

Improvement of IP Protection:  
IP65 and IP67

**BENEFITS:**

Extension to applications where heavy cleaning with water jets and temporary immersion are possible



SH4 can withstand 3 g vibrations/ 25 g shock (class 3M7)

**BENEFITS:**

Extension to applications with noticeable vibrations and shocks (i.e. press machinery)



Zero dead zone and pigtails with M12 connectors

**BENEFITS:**

- Reduction of overall dimensions
- Flexibility in installation



**EASY:  
ORDER,  
INSTALL,  
CONFIGURE,  
PROGRAM,  
MAINTAIN HAVE  
NEVER  
BEEN EASIER**





**EASY ALIGNMENT:**

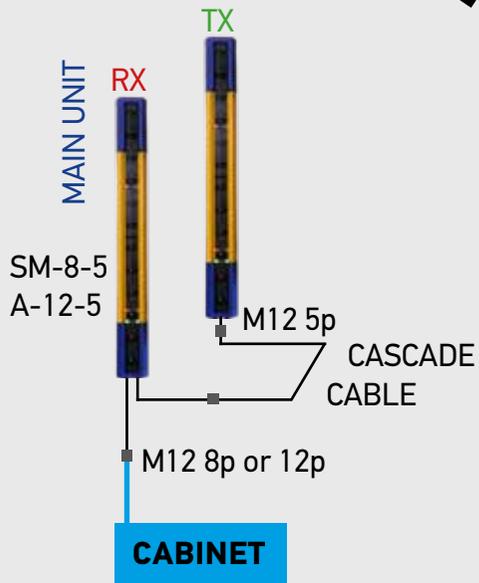
SH4 Advanced models offer integrated aimers:  
 Laser for finger/hand, and red LED for body  
 Each beam intensity is visible on SH4 Designer App

**BENEFITS:**

Less time for installation  
 Easy re-alignment without special tools after misalignment

**EASY WIRING:**

Pigtails with connectors make the wiring flexible, fast and easy  
 Cascade cables can be used up to 10m to power a couple with just one cable to the cabinet.



**EASY TO PROGRAM:**

Programming and diagnostic of Advanced models are possible by smartphone, tablet or laptop through wi-fi

**BENEFITS:**

No special interfaces or tools are needed for the installation and the maintenance.  
 The configuration can be saved and reused

**EASY TO ORDER:**

SH4 has in the same package all the necessary to install: emitter, receiver, pigtails, angular brackets.

**BENEFITS:**

no need to order several codes for standard applications All necessary material arrives with same packing

**EASY CONFIGURATION AND REPLACEMENT:**

Wiring and DIP switch configuration for standard models is easy and remains on the cabinet side of the cable

**BENEFITS:**

in case of substitution, the configuration is already in place

**EASY TO MANTAIN:**

High-visible LEDs all along the light curtain

**BENEFITS:**

- The status of any optical module of SH4 (ON, OFF, Muted, Alignment quality) is immediately seen and intuitively understood by operators and maintenance people.
- The muting indicator is integrated in the light curtain



# FLEXIBLE: SH4 OFFERS INNOVATIVE SAFETY FUNCTIONS FOR A UNIQUE VERSATILITY





**PARTIAL MUTING:**

Light curtain protected area can be muted only for the height of the entering material

**BENEFITS:**

Machinery safety is increased reducing as much as possible the muted area

**DYNAMIC PARTIAL MUTING:**

When the material is regular and has variable height, dynamic partial muting adapts automatically the muting area to the needed size

**BENEFITS:**

Also in case of objects with variable height, muted area can be reduced to the minimum, increasing the safety level



**4- SIGNALS MUTING:**

2-signals muting covers the biggest part of muting applications, with minimum number of sensors and using muting accessories

4-signals muting is the ideal solutions for all applications where material speed varies and muting sensors are installed with crossed beam

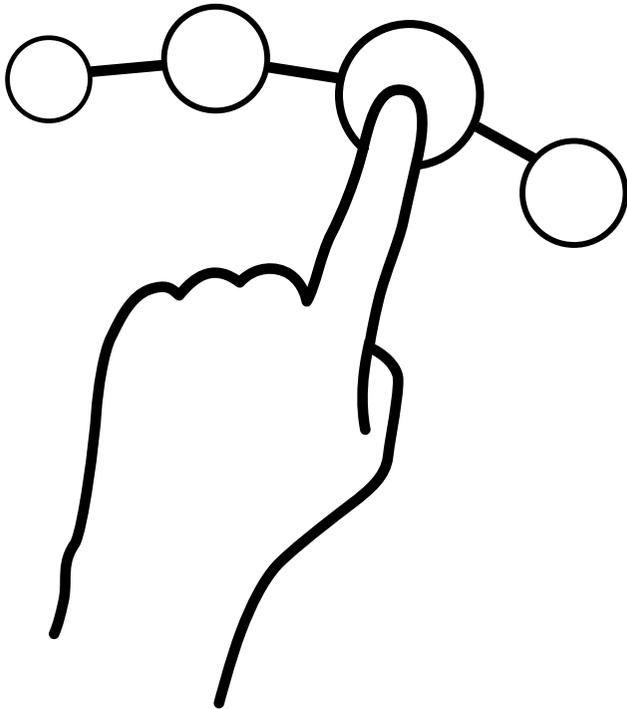
**BENEFITS:**

Particular conditions in the shape of material in movement, or in its speed, can be solved choosing between different types of muting



# SH4

## SELECTION GUIDE



	SH	4	-	14	-	0300	-	SM	-	8	-	5
series	<b>SH</b>	Safety light curtain										
type	<b>4</b>	Type 4										
detection capability	<b>14</b>	Finger: 14 mm										
	<b>30</b>	Hand: 30 mm										
	<b>2</b>	Body: 2 Beams										
	<b>3</b>	Body: 3 Beams										
monitored height	<b>4</b>	Body: 4 Beams										
	<b>0300</b>	300 mm										
	<b>0450</b>	450 mm										
	<b>2250</b>	2250 mm										
functionality	<b>B</b>	Basic										
	<b>S</b>	Standard										
	<b>SM</b>	Standard muting										
	<b>A</b>	Advanced										
	<b>C</b>	Cascade										
receiver main connector	<b>5</b>	5-pin male M12										
	<b>8</b>	8-pin male M12										
	<b>12</b>	12-pin male M12										
receiver secondary connector		No connector										
	<b>5</b>	5-pin female M12										
		No connector										

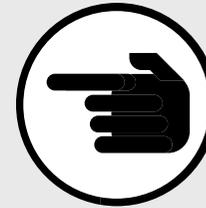
# STEP 1: SELECT THE DETECTION CAPABILITY

SH 4 - 14 - 0300 - SM - 8 - 5

14	Finger: 14 mm
30	Hand: 30 mm
2	Body: 2 Beams
3	Body: 3 Beams
4	Body: 4 Beams

Detection capability is linked:

- to the minimum distance of light curtain from the hazard point
- to the maximum distance possible between emitter and receiver



**14 mm**

Min. distance from the hazard point:  
2000 mm/s \* Response time when > 100 mm  
Max distance emitter receiver: 10 m



**30 mm**

Min. distance from the hazard point:  
2000 mm/s \* Response time + 128 mm  
Max distance emitter receiver: 20 m



**2/3/4 beams (body detection)**

Min. distance from the hazard point:  
1800 mm/s \* Response time + 850 mm  
Max distance emitter receiver: 70 m

\*minimum distance examples are for vertical applications: always refer to your local norms for correct evaluation of minimum safety distances. The response time is the overall response time of the safety function (including controllers and actuators)

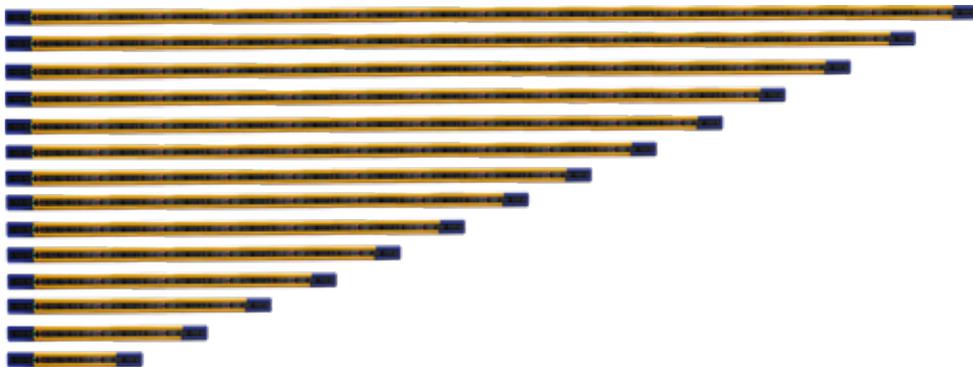
# STEP 2: SELECT THE HEIGHT

The height of the safety light curtain is linked to:

- the position of the light curtain relating to the hazard point
- the possibility of reaching the hazard point passing over the safety light curtain

SH4 finger and hand models have heights from 300 to 2250 mm with 150 mm steps

SH4 body models have 500/800/900/1200 mm heights, that are standard for 2/3/4 beams



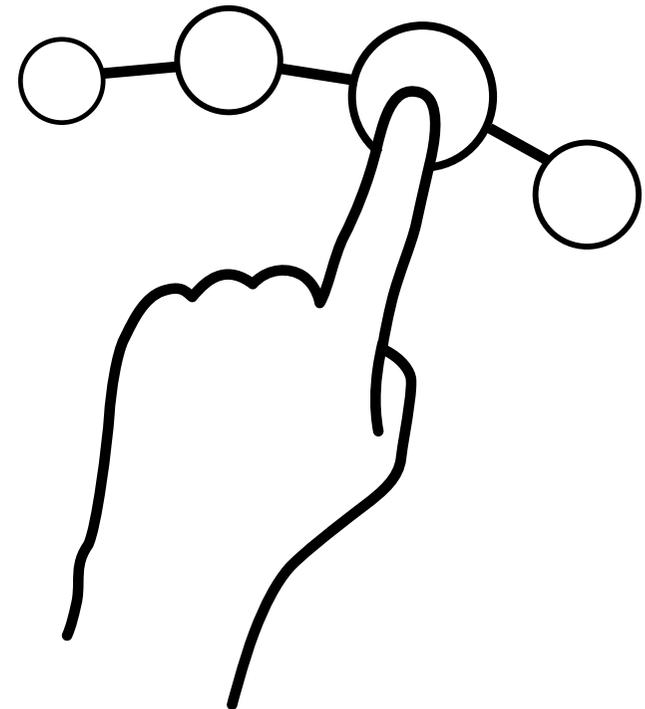
monitored height for 14/30

0300	300 mm
0450	450 mm
...	
2250	2250 mm

monitored height for body

0500	500 mm
0800	800 mm
0900	900 mm
1200	1200 mm

SH 4 - 14 - 0300 - SM - 8 - 5



\* For correct minimum controlled height calculation please always refer to safety standards

# STEP 3: SELECT THE FUNCTIONALITY LEVEL

The functionality level defines the functions available in the model, and the way it can be configured.

SH 4 - 14 - 0300 - SM - 8 - 5

<b>B</b>	Basic
<b>S</b>	Standard
<b>SM</b>	Standard muting
<b>A</b>	Advanced
<b>C</b>	Cascade

	LEVEL	FUNCTIONS	CONFIGURATIONS	RECEIVER MAIN CONNECTOR	TYPICAL APPLICATION
<b>B</b>	BASE	Automatic restart Test	Not needed	5 Poles	Manual load assembly machines (No advanced functions or manual restart needed)
<b>S</b>	STANDARD	Base functions Manual restart External Device Monitoring Reset	By wiring	8 poles	Machine access guarding with manual restart (Manual restart and EDM are needed)
<b>SM</b>	STANDARD MUTING	Standard functions 2-signals T/L Muting functions Partial muting (on group of beams) 2-inputs Override (level triggered) 2-inputs Override (edge triggered) 1-input Override (pulses triggered) External muting lamp output	By DIP switches	8 poles	Machine Access guarding with material passage (Muting inputs are needed to mute product passing through the curtain)
<b>A</b>	ADVANCED	Standard muting functions Integrated aimer (Laser on finger/hand models) Integrated aimer (Red LED on body models) Fixed blanking *Floating blanking *Reduced resolution *Fine tuning of muting parameters (timeouts)Partial dynamic muting *4-signals T muting time-monitored4-signals T muting sequence-monitoredPartial muting (on single beams)	By SH4 Designer App, using wi-fi and PC, tablet or smartphone	12 poles	Applications that require: Muting and/or blanking The use of corner mirrors Long distances between transmitter and receiver Quickest installation time Best in class alignment aids
<b>C</b>	CASCADE	It works only if connected to Standard Muting or Advanced model, and inherits its functionality	Inherits the configuration of the main unit	5 Poles	Access and presence monitoring (Daisy chaining)

# STEP 4: SELECT THE RECEIVER SECONDARY CONNECTOR

SH4 receiver main connector is linked to functionality level and the number of inputs needed. These are the receiver main connector pins, related to functionality:

- BASE: 5 pins
- STANDARD: 8 pins
- ADVANCED: 12 pins

The receiver secondary connector is instead optional  
Secondary connector is a M12 5-poles female connector that can be used to:

- connect muting arms SH-T-ARM or SH-L-ARM
- connect cascade models to Advanced or Standard Muting master units
- grant retrocompatibility with SG family light curtains.

NOTE: in Advanced models it's possible to configure the muting inputs on 12-poles main connector or on 5-pin secondary connector.

SH 4 - 14 - 0300 - SM - 8 - 5

5	5-pin female M12
	No connector



Main  
M12 male  
connector

Optional  
M12 female  
secondary  
connector

\*Only for Advanced body models, the secondary connector is always present (e.g. SH4-3-0800-A-12-5)



# STEP 5: SELECT THE RIGHT ACCESSORIES

	CODE	TYPE	FUNCTIONS	ORDERING NUMBERS
	ST-KSTD	BRACKETS	Angular brackets ST-KSTD (included in SH4 package)	95ACC1670
	ST-K4ROT-SH	BRACKETS	Top-bottom rotating brackets (optional)	95ASE0042
	SH-T-ARMS	ACCESSORIES FOR MUTING	For bidirectional 2-signals muting	95ASE0035
	SH-L-ARMS	ACCESSORIES FOR MUTING	For monodirectional 2-signals muting	95ASE0036
	SH-LP	EXTERNAL LASER POINTER	Alignment tool	95ASE0030
	SH-TARGET	REFLECTOR	Reflective target for integrated aimer (Advanced body models)	95ASE0046
	CS	CONNECTORS	-	For detailed models refer to SH4 series Datasheet

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